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ABSTRACT

A study was conducted to explore the question of what works in secondary vocational education--whether exemplary vocational programs can be identified, whether their key features can be described, and whether there are lessons to be learned that can assist others in devising strategies to improve secondary vocational education. Methodology included review of recent research, consultation with a panel of experts, preparation of detailed case studies based on site visits to seven high schools, and analysis of issues relevant to the implementation of the programs elsewhere. The schools studied were the following: Washington High School, Milwaukee, Wisconsin; Fridley High School, Fridley, Minnesota; High School Academies, Philadelphia, Pennsylvania; Walter Biddle Saul High School of Agricultural Sciences, Philadelphia; A. Philip Randolph Skills Center, Philadelphia; Wright Vocational Cooperative Center, Buffalo, Minnesota; and Woodland Cooperative Center, Staples, Minnesota. Among the chief findings were the following characteristics of exemplary programs: (1) clear and uniform understanding among administrators, teachers, parents, and students concerning the goals of vocational education; (2) consistent attention to the development of student self-esteem; (3) strong programs of school leadership; (4) inclusion of employability skills development in the curriculum; (5) presence of a strong cooperative education component; and (6) implementation of strategies to provide effective programs for special needs students. There is some evidence that these models can be adapted and implemented in other vocational education programs. (The case studies and 67 references are included in the report.) (KC)

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# EXEMPLARY SECONDARY VOCATIONAL EDUCATION:

# AN EXPLORATORY STUDY OF SEVEN PROGRAMS

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MINNESOTA

Independent School District #14, Fridley
Woodland Cooperative Center, Staples
Wright Vocational Cooperative Center, Buffalo

PHILADELPHIA, PENNSYLVANIA

A. Philip Randolph Skills Center
The High School Academies Program
Walter Biddle Saul High School of Agricultural Sciences

WISCONSIN

Washington High School, Milwaukee

Without exception, the educators we interviewed gave us candid appraisals of their vocational programs' strengths and problems. As educational leaders, they are exemplary as much because of their forthrightness about acknowledging and accepting their challenges as because of their deserved reputations for providing excellence in vocational education. We are appreciative of their willingness to share with us the full stories that lend texture to our case studies.

Early in the study, we were fortunate to engage the assistance of an advisory group with a wealth of experience in both vocational education and the study of schools or educational programs. We are indebted to Dr. Gary Burtless, Dr. Steven Hamilton, Dr. Jeannie Oakes, and Dr. Gordon Swanson for their invaluable advice. We would also like to thank Dr. John Wirt, the Director of the National Assessment of Vocational Education, who was our project officer for the study. His questions, insights, critiques, and unfailing support greatly assisted us in framing the issues for and analyzing the results of our visits.

The study team included Dr. Becky Hayward, Dr. Nancy Adelman, and Dr. Richard Apling. Elizabeth Reisner provided editorial assistance. Linda Bailey and Margaret Thompson prepared the manuscript.

## EXECUTIVE SUMMARY

The principal charge of the National Assessment of Vocational Education (NAVE) is to report to Congress on the status and achievements of vocational education under the Carl D. Perkins Act (Public Law 98-524), which was enacted in October 1984. Among the investigations commissioned by the NAVE to address the information needs of Congress was a small exploratory study of exemplary secondary vocational education; the findings of this study are reported in this volume. Included in the report are detailed case studies of seven effective high school vocational education programs or schools and a synthesis of major findings based on the case studies.

### Study Purposes and Methods

The chief purpose of the study was to explore the question of what works in secondary vocational education--whether exemplary vocational programs or schools can be identified, whether their key features can be described, and whether there are lessons to be learned that can assist policymakers, educators, and researchers in devising strategies to improve the quality and outcomes of secondary vocational education. In designing the study, we were particularly interested in the applicability of the effective schools research to vocational education. Further, an important purpose was examine the extent to which models, or archetypes, of secondary vocational education can be articulated and whether such models are susceptible to evaluation based on student outcomes or some other measure of program performance. Finally, one important objective was to examine the extent to which exemplary programs and schools can be replicated or adapted in other settings.

Activities undertaken to accomplish these purposes included the following:

- Review of recent research on the characteristics of effective schools
- Consultation with a panel of expert researchers and practitioners in education, vocational education, and evaluation design
- Preparation of detailed case studies based on site visits to high school vocational programs in seven schools or localities
- Analysis of issues relevant to the implementation, evaluation, and replication of exemplary vocational programs based on the information contained in the case studies

## Scope of the Study

The study was commissioned as a small, exploratory study; as such, its scope is limited, and the reader is cautioned that our findings should be viewed within the bounds of the study's. At the same time, we did attempt to select schools and programs that would provide some variation in settings, goals, and organization of secondary vocational education. Based on these objectives, we selected the following schools or programs for case studies:

Comprehensive High Schools

- Washington High School
  Milwaukee, Wisconsin

- Fridley High School
  Fridley, Minnesota

School-Within-a-School

- High School Academies
  Philadelphia, Pennsylvania

Specialty Vocational High School

- Walter Biddle Saul High School of Agricultural Sciences
  Philadelphia, Pennsylvania

Area Skills Centers

- A. Philip Randolph Skills Center
  Philadelphia, Pennsylvania

- Wright Vocational Cooperative Center
  Buffalo, Minnesota

Itinerant Vocational Education[1]

- Woodland Cooperative Center
  Staples, Minnesota

Visits to these schools occurred in spring and fall 1987. In each visit we interviewed district administrators responsible for vocational education, school administrators and teachers, guidance counselors, vocational education students, parents, representatives of advisory committees, and employers. We also observed classes. Additionally, we

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[1]This term has been coined to describe a vocational education cooperative arrangement that does not involve an area vocational physical plant. Rather, students and/or teachers are transported among the participating school districts for particular programs.

reviewed relevant documents that helped explain the nature and effects of secondary vocational education in the communities we visited.

## Study Findings

### Program Effectiveness

Among the chief characteristics of secondary vocational programs that appear to foster effectiveness are the following:

- Clear and uniform understanding among administrators, teachers, parents, and students concerning the chief goals of secondary vocational education in a particular setting
- Consistent attention to the development of student self-esteem
- Strong program or school leadership, which is characterized by creativity, flexibility, and commitment to vocational education as an integral component of secondary education
- Inclusion of employability skills development as a key component of vocational curricula
- Presence of a strong cooperative education component that provides students with support as they make the transition from school to work
- Implementation of strategies to provide effective programs for special needs students, including students who are handicapped, economically or educationally disadvantaged, limited English proficient, or disaffected

### Program Evaluability

In terms of program evaluation, the availability of student outcome data is very limited. Thus the postsecondary or later labor market payoffs of participation in secondary vocational training are unclear. At the same time, schools do track and can document some intermediate program outcomes, including particularly increased student attendance, retention, and graduation rates. Systematic and reliable evaluation of participant outcomes will likely require well-planned (and probably costly) national or state-level studies.

### Program Replication or Adaptation

There is some evidence that effective vocational education practices can be transported from one place to another. The academies program in Philadelphia, for example, has been widely adopted or adapted both within and beyond that city. The vocational cooperative model in Minnesota seems

eminently replicable in other rural school districts. Owing at least in part to the well-known effectiveness of the Saul School in Philadelphia, at least two other cities (Chicago and Milwaukee) have established urban agricultural sciences specialty high schools in recent years. These observations suggest that, with appropriate local adaptation, an effective vocational program in one setting can in fact be reproduced in other localities.

Responses to the Educational Challenges of the 1980s

Every program we visited was actively coping with the problems and challenges facing all of public education in the late 1980s as well as some that are specific to vocational education. Among these challenges were:

- Declining enrollments and resources
- Continuing stigma attached to student participation in high school vocational education, particularly in a decade where national attention has been focused primarily on academic improvement and reform
- Continuing difficulty in overcoming sex stereotyping
- Declining time within student schedules to elect vocational courses, in the face of increasing graduation and competency requirements.

In response to these and other challenges, vocational educators in some localities are designing and implementing a "new generation" of vocational education programs that pay more attention to the integration of academic and vocational education and to ensuring the options of their students. For example, the High School Health Academies in Philadelphia, the Randolph Skills Center's high tech program operated in collaboration with two comprehensive high schools, and Milwaukee's Computer Specialty program all involve a high degree of collaboration between academic and vocational instructors. Further, they focus more directly than "traditional" vocational programs on expanding career options for participating students, particularly on preparing students for enrollment in postsecondary institutions of all types. While the scope of our study was very limited, the existence of such programs suggests that rather than abandoning vocational education, school districts may be using its strengths in the context of their broader educational improvement efforts.

## Organization of the Report

The case studies of the schools and programs we visited are presented in Chapters III through VII of this volume. Study findings based on analyses of the case studies are presented in Chapter II. In consultation with the Director of NAVE, we decided to develop detailed case studies of each of the sites visited. This decision was based on a perception that case studies of a small group of purposively selected effective vocational

programs might be useful to the researchers and policymakers who are currently engaged in a comprehensive examination of the status of vocational education in the nation. Furthermore, we believe that profiles of exemplary vocational programs are an important contribution to the growing body of case study literature on high schools.

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# I. OVERVIEW OF THE STUDY

**What is effective vocational education in high school? What does it look like? Where does it happen? How has educational reform affected it? How is it responding to the nation's late-century circumstances? Most important, what does it do for students? How does it affect their lives?**

The principal charge of the National Assessment of Vocational Education (NAVE) is to report to Congress on the status and achievements of vocational education under the Carl D. Perkins Act (Public Law 98-524), which was enacted in October 1984. In response to that charge, NAVE staff developed a comprehensive study plan to examine vocational education in all its various manifestations--programs located in secondary and postsecondary institutions, programs that target the special needs of handicapped or disadvantaged or language minority students, strategies for responding to the nation's changing demographic and labor market conditions, the benefits of vocational education for its participants, and what states and localities are doing to ensure the effectiveness of vocational education as the nation moves into the 21st century.

One of the National Assessment's activities intended to address the information needs of Congress was the commissioning of a small exploratory study of effective secondary vocational education. In general, the study explored the characteristics of effectiveness in high school vocational education through a review of relevant research, consultation with expert researchers and practitioners, conduct of site visits to selected secondary schools, and development of detailed case studies. This report includes (1) a discussion of study purposes and methods, (2) a synthesis of major findings, and (3) case studies of seven effective secondary vocational education schools or programs.

## Study Purposes and Methods

The chief purpose of the study whose findings are reported in this volume was to explore the question of what works in secondary vocational education--whether models of exemplary vocational programs or schools can be identified, whether their salient features can be described, and whether there are lessons to be learned that can assist policymakers, educators, and researchers in an ongoing effort to improve the quality and outcomes of secondary vocational education. In undertaking the study, we were particularly interested in the applicability of the effective schools research to vocational education. Further, an important objective was to examine the extent to which models, or archetypes, of secondary vocational education can be articulated and whether such models are susceptible to evaluation based on student outcomes or some other measures of program performance. Finally, we were interested in examining the issue of

replicability; that is, are exemplary programs and schools idiosyncratic, or do they embody strategies that can be transported from one setting to another?

To accomplish these purposes, we undertook several interrelated activities. A review of recent research on the characteristics of effective schools generally and exemplary vocational programs and schools in particular helped to refine the study's focus. The advice of an expert panel helped us to establish some guidelines for our work, including selection of the detailed case study method, determination of criteria for identifying and choosing schools to visit, suggestions about different approaches to secondary vocational education, and recommendations on assessing outcomes. The assistance of practitioners facilitated our conduct of case studies at selected schools, and the involvement of the NAVE director and other staff members in the visits and in data analysis contributed to development of this report.

Our intent from the outset of the study was to look intensively at a small number of schools or programs rather than to undertake a broadly focused investigation.[1] The schools we visited for the case studies included in this volume were selected to ensure that we would be able to observe secondary vocational education in a variety of settings under a range of conditions. The criteria we used for their selection included the following.

First, because the environment in which schools operate has important implications for what happens there, we decided to explore secondary vocational education in a range of localities and settings. We identified schools in cities, suburbs, and rural communities.[2] Within this configuration, we also identified vocational education offered in different school settings: comprehensive or specialty vocational high schools, area vocational-technical schools (sometimes called skill, or shared-time, centers), school-within-a-school models, and a "cooperative without a roof."

Next, we identified schools and programs operating under differing state, district, or school perceptions of the primary mission and goals of secondary vocational education. While the goals of vocational education are never entirely distinct, administrators and practitioners do tend to place relatively greater emphasis on one or another of its potential purposes, particularly at the secondary level. We focused on two major goals that typically guide the delivery of vocational education in high schools:

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[1]Other studies commissioned by the NAVE include national surveys, systematic reanalyses of national cross-sectional and longitudinal data sets, and other activities that will provide national information on the status of vocational education.

[2]To the extent possible within the study's budgetary constraints, which required the clustering of sites, we also attempted to achieve some measure of variation in geographic location, since the goals and practice of vocational education differ substantially across regions in the United States.

- To provide vocational skill training, which aims to prepare students for entry-level jobs in specific occupations, such as automotive technician or dental assistant

- To provide vocational exploration, which aims to introduce high school students to one or more occupations in which they might be interested, thus enabling them to begin the process of making career choices

Finally, we attempted to ensure, insofar as was possible before actually going to schools for interviews and observations, that the candidate schools and programs were in fact exemplary. That is, we attempted to ascertain, based on our prior work in vocational education, discussions with researchers and practitioners, and review of earlier studies of exemplary secondary vocational education schools and programs, that each of the schools to be visited is demonstrably effective in accomplishing the goals it has set for itself in vocational education. Given the study's exploratory nature, however, we did not attempt to obtain outcome data or other information to ensure that the schools we selected were necessarily "the best" in their localities. In Philadelphia, for example, schools other than the ones we selected are also reported to be operating highly effective programs. However, we purposively selected schools that are acknowledged to be both highly successful and representative of a range of the approaches, strategies, and delivery systems specified in our study design.

We did not select any "average" schools to serve as a comparison group. Rather, we have used as a reference our extensive prior experience in conducting detailed case studies in both comprehensive and vocational high schools and programs around the nation. This experience, in conjunction with our familiarity with the extant research literature on secondary schooling and schools, provided the context within which we observed the programs and schools we visited, as well as a framework for the development of the study's findings, which are presented in Chapter II.

It should be emphasized in regard to the question of the effectiveness of secondary vocational education that the measurable outcomes of secondary schools and programs must be analyzed in the context of its stated goals. For example, schools that aim to train students for jobs after high school are appropriately evaluated on their success in placing students in jobs, and are more effective to the extent that such jobs have payoff potential in terms of income and career advancement. However, it is also appropriate to assess program effectiveness in these schools in terms of students' enrollment in postsecondary training; for some students in such schools, completion of a high school program may constitute an appropriate intermediate outcome. On the other hand, exploratory vocational education is probably most appropriately evaluated almost exclusively in terms of student enrollment in further training at the secondary or postsecondary level. However, entry into a job, particularly one that provides on-the-job or other postemployment training, is also an appropriate measure of performance for some students in exploratory vocational programs.

Based on our objectives of exploring exemplary secondary vocational education (1) in a range of settings and (2) with variability of educational goals, we selected the following schools or programs for case studies:

Comprehensive High Schools

- Washington High School
  Milwaukee, Wisconsin

- Fridley High School
  Fridley, Minnesota

School-Within-a-School

- High School Academies
  Philadelphia, Pennsylvania

Specialty Vocational High School

- Walter Biddle Saul High School of Agricultural Sciences
  Philadelphia, Pennsylvania

Area Skills Centers

- A. Philip Randolph Skills Center
  Philadelphia, Pennsylvania

- Wright Vocational Cooperative Center
  Buffalo, Minnesota

Itinerant Vocational Education[3]

- Woodland Cooperative Center
  Staples, Minnesota

Visits to these schools occurred in spring and fall 1987. In each visit we interviewed district administrators responsible for vocational education, school administrators and teachers, guidance counselors, vocational education students, parents, representatives of advisory committees, and employers. We also observed classes. Additionally, we reviewed documents, including district vocational education plans, curriculum guides and other instructional materials, evaluation reports, student followup reports, and other available materials that helped explain the nature and effects of secondary vocational education in the communities we visited.

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[3]This term has been coined to describe a vocational education cooperative arrangement that does not involve an area vocational physical plant. Rather, students and/or teachers are transported among the participating school districts for particular vocational programs.

## Organization of the Report

The case studies presented in Chapters III through VII of this volume constitute the study's data. Study findings based on analyses of these data are presented in Chapter II. In consultation with the Director of NAVE, we decided to develop detailed case studies of each of the sites visited. This decision was based on our perception that case studies of a small group of purposively selected effective vocational programs and schools might be useful to the researchers and policy makers who are currently engaged in a comprehensive examination of the status of vocational education in the country. Furthermore, we believe that profiles of exemplary vocational programs are an important contribution to the growing body of case study literature on high schools.

While the organization of the individual case studies varies somewhat to accommodate the unique aspects of the settings and localities, in general they are arranged similarly and include the following components:

- Overview of the school's setting, mission, and goals
- Description of the school's environment
- Analysis of the district structure of vocational education, including the role of vocational programs, decision making and governance, supports and constraints, relationship of vocational and academic components, and changes over time in vocational education
- Description of the school's vocational programs and outcomes
- Profile of the vocational teachers
- Profile of students
- Indicators of the school's success--or "exemplariness"

The case studies are grouped according to the types of delivery systems encountered. Thus, Chapter III of the report includes two case studies of vocational education in comprehensive high schools. Chapter IV presents a school-within-a-school model; Chapter V, a specialty vocational high school. Chapter VI includes case studies of two area vocational-technical centers, and Chapter VII is a case study of a rural vocational education program that we have called "itinerant" vocational education. Authors of the case studies are identified at the beginning of each one.

## II. STUDY FINDINGS

The principal purposes of the study included (1) exploration of what works in high school vocational education, (2) examination of program evaluation issues, and (3) consideration of issues concerning program replication or adaptation. This chapter presents the study's findings, which are based on the case studies included in later chapters of this volume. In considering these findings, the reader should keep in mind that the number of schools we visited is small--seven in all. Further, our schools were purposively selected, and thus do not represent the range of approaches to vocational education in high schools, although, as noted earlier, we did attempt to obtain a measure of variability among the cases in terms of program goals, settings, environments, and the like. This chapter includes sections on the following topics: (1) characteristics of effective secondary vocational education, (2) outcomes of effective vocational education, (3) transportability of effective programs, and (4) challenges faced by secondary vocational educators as they work to ensure the quality of their programs.

### Characteristics of Effective Secondary Vocational Education

High school vocational education occurs in a variety of settings, including comprehensive and vocational high schools, area vocational centers, and specialized organizational configurations such as specialty programs or schools-within-school. Although there is considerable overlap in its broad purposes, the vocational education that occurs within these settings tends to focus on one or the other of two major goals--either to train students for jobs following high school or to introduce them to a variety of careers that they may (or may not) choose to pursue after high school through additional training or education.[1]

This is not to say that vocational educators do not articulate corollary purposes for vocational education. Among the corollary purposes of particular interest in the schools we visited are reinforcement (or, quite often, remediation) of academic skills, the teaching of basic employability skills and behaviors, instruction in life skills, and, perhaps most pervasive, the building of students' self-esteem. In addition, vocational education in particular settings may be expected to aid in dropout prevention, attract higher achieving students in the context of overall school improvement initiatives, serve as magnet programs to assist districts in meeting desegregation requirements, and respond to community needs and interests or to specific labor market trends. One of the

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[1]This report does not devote much attention to what is usually called "personal service" vocational education--those courses that students take less as vocational training or exploration than to meet avocational objectives.

indicators of the effectiveness of the schools we visited was the ability of district and school administrators to accommodate--perhaps to juggle--a multiplicity of sometimes competing goals and priorities in such a way as not to impinge on the quality of the instruction that was occurring in the classroom.

Given this multiplicity of priorities, one of the challenges in identifying and describing effective vocational education is to sort out what vocational education is about in a given locality; that is, how schools develop and deliver services that will meet the needs of students who come to it with widely varying abilities, objectives, and interests. This is a particularly critical problem for vocational educators in the late 1980s, as they face a large number of changes and challenges in secondary public education overall. Because of current demographic trends, they are competing for students in an era of declining enrollments and resources. They are also facing the challenges posed by the academic reform movement and attempting to accommodate major changes in the nation's labor market.

Within this multiplicity of settings, goals, and conditions, however, the schools we visited provide evidence that vocational education can be, and is, effective for the variety of students who elect to participate. Among the characteristics that appear to affect the quality and outcomes of the programs we visited are (1) careful articulation of program goals, (2) strong leadership, (3) high levels of teacher engagement, (4) commitment of administrators and teachers to students' personal development, (5) provision of special services for target populations, and (6) inclusion of a cooperative education (co-op) component in the school's vocational curriculum.

## Program Goals

Training for jobs. In the schools we visited, there tended to be a clear consensus among district and school administrators, staff, and teachers concerning the goals of vocational education. Generally speaking, in the Philadelphia programs jobs were the primary goal. At the Randolph Skills Center, the purpose of vocational education, from cosmetology to biomedical instrument repair, is to train students for good entry-level jobs that have career advancement potential. The school adds and drops programs according to their likely payoff for students in terms of earnings and advancement. (For example, the principal had recently dropped a program in geriatric care; although there is high labor market demand for such workers, wages top out at a low level.) Students are encouraged to complete a vocational program that includes introductory and advanced courses in a particular trade as well as cooperative education, which Randolph staff believe is critical to the later labor market success of students who are unlikely to have had much direct or even indirect experience with the world of work. Additionally, the school targets small businesses for first jobs for its students, based on the understanding that small employers, who cannot afford to provide much in the way of formal postemployment training, are more likely to hire young graduates who may lack job experience but have mastered entry-level job skills in school. The notion is that such first jobs will lead to higher paying positions in larger companies, or promotions in the smaller businesses.

Job training is also a primary goal of the agricultural sciences programs at Saul. Even though a majority of the school's graduates go on to postsecondary institutions (generally in fields related to their high school vocational education), the school has over the years developed a reputation that for the most part ensures training-related jobs for its graduates. For example, turf management occupations, a variety of jobs in the large city park adjacent to the school grounds, and laboratory animal maintenance positions were cited as good (and feasible) entry-level jobs for metropolitan graduates of secondary-level agricultural science programs.

Career exploration. Exploratory vocational education is characterized by a broader range of goals than are the programs that train students for immediate job placement. Even so, the individual exploratory programs we observed also tended to reflect consensus about the purposes of their programs. In Minnesota, for example, in part because of state policy, the schools see their mission as one of "introduction," exposing students to a variety of potential occupations that they can prepare for during further training at one of the state's postsecondary area vocational-technical institutes or elsewhere. Students tend to take one course in one or more particular occupational clusters rather than enrolling in a program of vocational training as they do at Randolph and in the Academies. Thus they have the opportunity to test out a variety of potential career areas, and a decision not to pursue an occupation is as important an outcome of such programs as is the decision to enter a field.

The "traditional" vocational programs at Washington High School in Milwaukee have in recent years modified their goals to focus mainly on career exploration. In part because of limited resources, but more importantly in response to the implementation of occupationally specific magnet programs throughout the system, the industrial and other programs at Washington High attempt to provide an occupational grounding that will motivate students to continue training at the postsecondary level. With the exception of welding, where students do sometimes go directly into a related full-time job, even the co-op programs stress career exploration rather than preparation for specific jobs.

Two specialty programs we visited have a somewhat more expansive, or ambitious, goal within the broad rubric of career exploration. Both the High School Health Occupations Academy in Philadelphia and the Computer Data Processing specialty at Washington High in Milwaukee represent a type of merging, or "next generation," of programmatic goals. While their primary focus is not on immediate job placement (and indeed, many of their graduates go on to college in fields that are not directly related to their high school vocational education), they are intensive "programs" along the model of the vocational programs at Randolph or Saul, with students enrolled for three or four years. At the same time, while much of their emphasis is on career development rather than jobs, a significant number of program completers do in fact enter training-related jobs on a full or part-time basis directly after graduation. Overall, however, these programs embody the broader emphasis--on academic skills, on career planning, and on preparation for postsecondary education--that many analysts believe represents the most appropriate focus of vocational education at the secondary level.

Employability skills development. Whether the principal goal is occupationally specific training leading to jobs, vocational exploration, or some blend of the two, a key objective of all the vocational education we observed is to impart basic employability skills and behaviors to students. Thus vocational courses and programs are intentionally used as a vehicle to teach students to survive, and flourish, in the workplace. Among the capacities that teachers attempt to impart are strategies for obtaining, retaining, and leaving jobs; appropriate behaviors like punctuality and regular attendance; effective interactions with coworkers and supervisors; and related life skills that indirectly affect work, including budgeting, dealing with taxes, and even how to register to vote.

Strategies for infusing these skills vary somewhat according to the principal goals of vocational education as well as other conditions, such as availability of part-time jobs for students. One of the primary vehicles for teaching employability skills at Randolph, for example, is co-op, which is viewed by the Center's administrators and teachers as a critical "last step" in preparing students for immediate training-related placement. Additionally, the shops at the Center are organized like the workplace, with instructors playing the role of a supervisor and students following a simulated workday with scheduled breaks and lunch. Finally, the school's guidance staff has developed an intensive, one-week group counseling seminar required of all seniors. This seminar emphasizes employability and life survival skills, as well as serving as the vehicle for students to "develop a plan" for obtaining a job or entry into a postsecondary institution. Thus the school places considerable emphasis on employability to complement the occupational skills that students learn in their vocational programs.

The High School Academies program employs a number of strategies to assure that its graduates have attended to and assimilated lessons on employability skills. In addition to constant reminders in the classroom about appropriate workplace behaviors, students in the Business Academies are required to come to school dressed for the workplace on certain days. Each eleventh grader spends a morning at a local business learning about the job application process. Twelfth graders participate in practice interviewing at actual job sites, with written feedback to both the students and the program. At some schools that house academies, the inculcation of employability skills is a major challenge, requiring a full four years of intensive work and a great deal of patience and perseverance on the part of program staff.

At Washington High, co-op is the main vehicle for students to learn about the world of work and its behavioral demands. Flowing from the essentially exploratory nature of the traditional vocational courses at that school, co-op is not particularly intended to result in job placement, and many of the jobs are in occupations like fast food or retail sales. Even though students will not likely make careers of these jobs, they play a key role in students' employability development. One co-op coordinator commented that he stresses with employers that he is less interested in his students' job skills than in their attendance, responsiveness, and seriousness. His students need to learn communication and life survival skills and a sense of adult responsibility that will facilitate their success after school, and co-op is an excellent opportunity for them to pick

up these skills and behaviors without really knowing they are "learning" in a formal school sense.

In Minnesota, where the two vocational cooperatives we visited serve a number of very small, basically rural communities, vocational educators have taken a somewhat different approach to employability skill development. Because the number of jobs is limited, vocational courses in these schools simulate the world of work--there are model stores and offices, students in construction build a house, and those in child care observe and tend children in high school-based nursery schools or daycare centers. Additionally, in many instances instructors adopt a mentor-supervisor role in the lab or shop portions of their courses, treating their students as workers as much as students.

Thus, a consistent objective of vocational education at the secondary level is to teach young people <u>how</u> to work---how to behave in the workplace. This objective pervades both the vocational training that intends to enable students to go to work directly after high school and the vocational exploration that tries to assist students in deciding on the types of careers they wish to pursue through additional training after high school. It is an important component of effective secondary vocational education, and is thought by virtually all our respondents to be critical to their achievement of the primary goals they have articulated for their programs.

<u>School and Program Leadership</u>

One of the major tenets--indeed, by now probably a cliche--of the effective schools research is the key role of leadership in successful schools. Thus, it is not surprising that leadership plays a critical role in the vocational schools and programs we visited. What may distinguish vocational education from regular academic schools and programs, however, is the variability in the <u>levels</u> at which leadership may affect program quality, perhaps in part because of the variability in organization of vocational education. In some instances, a principal is the key leader whose vision and commitment set the tone for a school, but in other instances strong and creative leadership may reside in some other position, such as a district official, program head, or even a business executive. In any case, among the qualities that characterize the key leaders we observed were a great deal of energy, commitment, and creativity in approaching resource and other problems that must be dealt with in maintaining effective vocational programs.[2] To illustrate the leadership qualities that appear critical in effective vocational schools, we have selected several examples.

Perhaps the "prototypical" strong leader among the schools we visited is the principal of the Randolph Skills Center in Philadelphia. A former science and mathematics teacher, the principal (as well as the two vice principals) has been at the Center since its opening in 1975. Thus the school in some ways <u>is</u> his philosophy. There is a very high level of

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[2]It is interesting that many of these persons did not come from vocational education backgrounds; they were often former academic teachers.

consistency among school administrators and teachers on the chief mission of the Center and on the appropriate strategies for accomplishing that mission.

Perhaps the two key elements to leadership--and excellence--at Randolph are a strong, visible administrative presence and a carefully implemented philosophy of orchestrated change, combined with very close attention to virtually all the details of running a school. Regarding the former, the principal and vice principals spend a good part of each day out in the shops and not in the school's administrative offices. They are not monitoring the behavior of students (or teachers) so much as offering support, working actively to ensure the smooth operation of the school. Regarding the latter, "stable change" is reflected in the principal's adding, dropping, or reconfiguring curricula in response to labor market trends and his analysis of their likely career payoff for students. The vice principals have recently traded responsibilities; even the building configuration changes often, with walls relocated to accommodate space needs of new or changing programs.

These strategies work. Virtually all respondents at the school believe that Randolph is the best school in Philadelphia, and all attribute its excellence to the quality of its leadership. A vice principal commented that the school is "better than excellent. . .because everything is spelled out and well organized. There is no doubt about the processes, curriculum, expectations, and everyone, including teachers and students, knows what those expectations are." Another respondent noted that the school's leadership, which is "color blind," cares about the students and teachers as people and about continuously upgrading the education provided by the Center.

In other circumstances, the leaders may be other than a principal. At Washington High School, for example, the magnet computer program's "implementor," a job title created to describe the dual teaching and organizational responsibilities of the program's director, is key. The original implementor, now assistant principal, is described as having had the technical expertise, creative vision, and personal energy and charisma to develop a great deal of school and community support for the program. The current implementor, a math teacher, has continued the level of leadership established by her predecessor. The means by which she came to the position is instructive to any consideration of how programs obtain effective leaders. Because in Milwaukee teacher assignment and transfer are not in the purview of school administrators, her assignment was essentially coincidental.

One of the key actors in the academies program in Philadelphia is the school district's liaison, whose responsibilities include day-to-day functioning of the program: advocacy within the district and in the business community, program development, troubleshooting, and quality control. Both district and academy administrators pointed to this person's leadership as a major factor in the ongoing success of the academies. Additionally, in its early years the program obtained important leadership from a business executive whose company placed him on essentially permanent loan to the program. This arrangement facilitated the integral involvement of business in the program's operations and successes, a pattern that has been maintained over the program's nearly 20 years of operation.

Finally, the Woodland Cooperative in Staples, Minnesota, is administered by a vocational educator who was formerly a vocational agriculture teacher. The director of the Center has a solid grounding in the community, great energy and creativity, and a personal vision of what an effective secondary vocational cooperative should look like. To some extent a "one-person show," he is responsible for all aspects of the Center, including hiring and supervision of staff; planning, development, and evaluation; purchasing; liaison with the community and the governance structures of six school districts; and tracking of state and national legislation and trends relevant to vocational education. All this, and the director knows virtually every adult and most students in the six participating districts by name. Thus he has a particular flair for marshalling the human and fiscal resources needed to support a high-quality program.

This capability characterized each of the leaders described above. One of their key accomplishments is this ability to obtain the resources necessary to implement programs according to their visions of the role and potential of vocational education for high school students. The principal at Randolph won a grant to implement a new program. The support of the business communities that flows to the academies in Philadelphia and the computer magnet in Milwaukee is real, not token contribution of equipment or supplies. Further, the integral involvement of business that the educators have managed to achieve has infused a real-world, business view into the problem-solving, resource allocation, and other responsibilities of the educators.[3] Thus even in an era of declining resources for education, the administrators of effective schools and programs can find ways to access what they need to ensure the viability of their programs.

It is evident from this discussion that the sources of leadership in local secondary vocational education are in some ways serendipitous. Many are from academic backgrounds, although there are excellent persons coming from specific vocational education training and experience as well. Some are from the business community. Some are trained as school administrators. Others are veteran teachers or spent their early career years in pursuits only tangentially related to education. What they seem to share is a commitment to vocational education, which they believe, at its best, can work for all sorts of students in all sorts of settings. They also share the energy and flexibility to use their environments effectively in ensuring program quality. Finally, their personal dynamism and charisma help to engender the enthusiasm and commitment of teachers, students, parents, and others engaged in one way or another in the educational process. An important question relevant to the future of secondary vocational education is whether there are enough such leaders to go around.

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[3]Even in the presence of dynamic leaders, however, community characteristics may affect the level of resources available to support good vocational education. For example, in Fridley, Minnesota, the graying of the community and changing labor market have made resource acquisition difficult, even for highly committed leaders. Thus to some extent leadership must have a baseline of human and monetary resources to allocate to the provision of high-quality programs.

Teacher Quality and Commitment

It is obvious that the ultimate responsibility for ensuring the quality of vocational courses rests with teachers. As would be expected in a study that intentionally visited effective schools and programs, the teachers we interviewed were articulate, committed, and able. What is perhaps somewhat less predictable was our observation that many of them are particularly sensitive to the totality of their students. The instructional environment of vocational education, where teachers typically interact with students for several periods a day, appears to foster relatively closer relationships than are often thought to characterize high school student-teacher interactions. Further, most of the teachers we observed assume a role that more closely approximates a mentor-supervisor than a stereotypical teacher role. Of necessity, students and instructors work closely in a hands-on way, and good vocational teachers spend considerable effort on teaching and modeling strategies for living as well as skills for working.

Many of these teachers display great commitment and energy. For example, a food service instructor at the Randolph Center literally bubbles over with the accomplishments of his students, ranging from promotions to salad chef to acceptance in such major schools as the Culinary Institute of America. The best of the teachers we met, nearly all of whom were trained, often to the master's level, in vocational education, have adopted a role in which the school and the workplace coalesce. As noted above, they tend to behave like line supervisors who are providing on-the-job training. At the same time, they appear comfortable with the tools of education--using the classroom as an opportunity to teach academic and conceptual skills, to improve students' communications skills, and to give advice about career opportunities.

Many of them are clearly working hard to keep up. At Washington High School in Milwaukee, the head of the industrial-technical education department had spent nights and weekends learning to program a computer-controlled milling center. At Randolph, an automotive teacher had recently taken a course in repair of computer-controlled car engines. At Saul, instructors have revised their meatcutting program to accommodate the industry's move to prepackaging, and the Woodland Center in Staples, Minnesota, has added desktop publishing and computer-assisted design to its curricula.

At the same time, many of the teachers we interviewed are concerned about the tenuous position of vocational education, particularly in the context of school reform. On the one hand, they recognize the need for school improvement, and they know that vocational education must change to remain viable. On the other hand, they articulate their concern that vocational education, which they view as an important component of a total secondary program, will disappear from high schools. An instructor at Washington High School echoed the views of many of our respondents:

> The vocational education programs that are foundering at the secondary level are the traditional ones, and if a school is implementing newer concepts. . .the programs will do all right. . . .Secondary vocational education has to adapt in order to survive.

This and other schools we visited are implementing changes to make traditional vocational education more relevant to their students, and in many localities the teachers are playing a very active role in these changes.

The quality and enthusiasm of the teachers in the vocational programs we visited are particularly noteworthy given the fact that, in general, program administrators do not have much hiring and firing authority. This is particularly true in the urban districts, where teacher assignment is governed by both union and school district policies and procedures. Nevertheless, it was our observation that dynamic programs seem to have a way of attracting, and retaining, capable personnel. At the Randolph Center, for example, many of the teachers have been at the school since its opening, and there have been very few requests for voluntary transfers.

Further, certain schools within large districts (like the Saul School) seem to acquire reputations as "plum" assignments, and good teachers reportedly tend to request assignment to those schools when enrollment patterns or other factors require changes in school staffing. To a great extent, the success of programs like the High School Academies is dependent on the quality of the staff the program can attract. As that program has grown, procedures for teacher selection and subsequent in-service training have gradually been formalized. When a new academy is opening, or when an established one needs staff, other teachers in the host high school are given first priority. Seniority plays a major role in selection, but other key criteria include ability to work as part of a team, capacity to be more to students than just an instructor, and openness to change. Thus even in environments where school administrators lack direct hiring authority, strong programs are able to influence staffing configurations and thus to attract the quality of teachers needed to ensure program effectiveness.

Student Engagement and Self-Esteem

The finding of the effective schools research that high expectations for students and a high level of student engagement are important components of successful schools appeared to be manifested at the schools we visited in a very high level of attention to students' self-esteem. To a remarkable extent, vocational teachers and administrators we interviewed focus on students' personal development as a critical component in effective vocational education at the secondary level. Their concern that students learn what they were teaching, whether that was primarily occupationally specific skills, attitudes and behaviors that would facilitate labor market success, or information that would support decisionmaking about posthigh school educational and career paths, is expectable. However, many (particularly urban) vocational educators agree that before direct instruction can take hold, a much more fundamental issue must be addressed. In their experience, many of the students who enroll in vocational education have very low self-esteem, often resulting from a history of limited success in school in addition to personal and family problems. They tended to view vocational education as a milieu in which these students could learn to succeed, thus increasing their self-images and significantly increasing the likelihood that they would become productive members of society.

One of the most pervasive mechanisms for increasing self-esteem is to treat high school students as responsible adults, and to expect them to act that way. Consistently across the schools we visited, instructors simulated the workplace in their shops. They expected students to behave as adult employees, and they themselves tended to assume the role of mentor-supervisor. In this context students responded to behavioral expectations by working in a quiet, orderly, engaged fashion, saving chit chat for breaks and changes in classes. This strategy helped to create an atmosphere of serious attention and commitment to the tasks at hand, and students received positive reinforcement from their peers--and themselves--as well as from instructors as they mastered their assignments.

Another key to increasing students' self-esteem, particularly in the inner-city schools we visited, was the widespread use of cooperative education. First, students are taught that they must meet certain academic and behavioral standards in order to earn co-op placements. Co-op thus becomes a privilege, and those who participate start with a sense of having achieved something. Second, their on-the-job behavior (attendance, punctuality, cooperativeness, dress, and demeanor) are monitored closely by both co-op coordinators and employers, and they receive supportive instruction both at the work place and in class. A communications instructor at Washington High School described the importance of co-op to students in this way: "For some students, co-op is their only chance to find a spot to be." He believes that co-op is very valuable, especially for disadvantaged students, because such students often lack the self-esteem and maturity to get and hold a job. For such students, co-op is virtually the first time that they begin to see a tangible relationship between work and school, between performance and having money.

Vocational education teachers are well positioned to support personal development among their students. In many instructional configurations, they spend more considerably more time with their students than do academic teachers, and they get to know them better. In some instances, they tend to become counselors and advisors--often serving in some sense <u>in loco parentis</u> for their charges. At the Saul School in Philadelphia, for example, vocational teachers work with students for large blocks of time, and in the view of one instructor, "We may be the single most important adult in their lives. . . .It's not unusual for us to talk to students about their families and problems they have at home; because we're interested in their future, we're dealing with the whole child."

The High School Academies program in Philadelphia places particular emphasis on the centrality of self-esteem. Students in the Health Academy are frequently and strongly encouraged to aim high and to believe that they can complete a high school program that will allow them to pursue further education and a wide range of health-related occupations. The Business Academies work on raising students' self-esteem by establishing highly visible rewards for realistically achievable milestones. For example, two months of successful on-the-job performance lead to membership in the Gold Star Club. Academy sweatshirts, banners, keychains, and the like reinforce the notion that participation in the program is a mark of distinction. All of these strategies have a single goal: to convince inner-city youth that they can compete and succeed.

Concern for students' self-esteem was an impetus for a special intensive counseling program developed by the guidance staff at the Randolph Skills Center in Philadelphia. The program teaches students a variety of survival skills, including how to manage money, how to arrange for child support, insurance, and loans, how to register to vote, and how to plan for adult life. Additionally, the program helps to reinforce the knowledge and behaviors students learn in their shops and co-op, all of which are intended to instill the confidence that they can succeed in the labor market and in other aspects of adulthood.

The importance of building self-esteem through vocational education cannot be overemphasized. At its best, this aspect of quality vocational education, in combination with its other instructional objectives, can have very important payoffs for individuals and society. As the principal of Randolph commented, "secondary vocational education <u>works</u> when a student does not follow the welfare tradition of his family. To break this cycle, we need good training for high-paying occupations; and we need to teach students how to manage effectively, not only in their first job but in future jobs as well." Key to this mission is to instill in students the belief that they <u>can</u> succeed, and the schools we visited are paying close attention to the psychosocial capabilities students need to succeed as well as to their conceptual and vocational skills. Perhaps this attention is one of the key factors that distinguishes effective secondary vocational education programs from those that are merely typical.

## Special Populations and Programs

One of the characteristics of the schools we visited is the creativity with which administrators use vocational education to attack some of the endemic problems of secondary education generally and of vocational education in particular. Two of the thorniest issues being confronted are (1) the difficulties of providing appropriate educational options for special needs populations, particularly educationally disadvantaged, handicapped, and other at-risk groups, and (2) the legitimacy of secondary vocational education, particularly for higher ability students who may more appropriately spend their high school years preparing for college.

Many of the innovative steps being taken by vocational education appear to be premised on two widespread beliefs. First is the frequently heard claim that vocational education keeps students in school, offering an applications-oriented approach to learning that many students, particularly those with special needs, find more compatible than the theoretical approaches that tend to characterize academic courses. Secondly, many vocational educators believe that, given rapid changes in technology and in the nation's labor market, vocational courses have a place in the secondary education of all students, regardless of their later educational and career plans.

Some of the programs we visited are by definition and mission special programs that were developed to serve the needs of special populations (particularly those with economic and educational disadvantages), while others focus more specifically on attracting "nontraditional" students to vocational education, which in this case means the higher ability students

who often avoid vocational training in high school. Some schools are using vocational education to do both.

In Philadelphia, for example, the idea for the High School Academies program was conceived in 1969 by local educational and business leaders as a strategy to confront the city's educational and employment problems that had contributed to the outbreak of violence in 1968. Originally targeted to disadvantaged students in inner-city high schools (a group that continues to be the focus of many of the academies), the program offered students vocational training and jobs to capture and sustain their interest in completing high school. The efficacy of the program's philosophy is reflected in its high student retention and completion rates, as well as in its continued growth since its inception. Further, based on a belief in the potential of the model for all students, in the past few years the district has successfully broadened the program's scope to target higher ability students. The two new Health Academies, for example, are attracting students who aspire to college and professional careers, and for many of the students, these aspirations are thought to be realistic.

Similarly, Philadelphia's Randolph Skills Center has recently established a new program that is offering high tech training in an attempt to attract higher achieving students to vocational education, and the Computer Specialty Program at Washington High School in Milwaukee has much the same goal, in addition to its use as a magnet program to facilitate racial balance at the school. The Saul School has traditionally attracted largely college-bound students, who, along with their parents, have viewed the school's small size and orderly and safe environment as a good choice. All of these programs are popular with students; most have at least two applicants for each available slot, and they are apparently succeeding at sending their graduates on to postsecondary institutions.

At the same time, virtually all the schools we visited are using vocational education as a learning environment for special needs students. The Woodland Center in Minnesota operates an alternative center to attract disadvantaged and handicapped dropouts back to school. The Randolph Center in Philadelphia, 28 percent of whose students are handicapped, provides support services for all special education students as well as special programs for its more severely handicapped students and has an extended day program for limited English proficient students. As noted above, several of Philadelphia's academy programs specifically target academically deprived students, with retention and graduation as major program goals.

Perhaps most striking in its implementation of vocational programs for special needs students is Washington High School in Milwaukee, where 55 percent of the student body is economically disadvantaged and a high proportion have educational deficits. The school has made a major commitment to cooperative education, which instructors and administrators clearly view as a dropout prevention strategy for at-risk students. The success they have experienced with this strategy has led them to implement a new pre-co-op program for some of the school's most highly at-risk students, and while the program only started this year, officials are optimistic about its likely effects. Additionally, the department of industrial-technical education offers a bilingual vocational course in manufacturing to limited English Asian students. Finally, the school overall enrolls a large number

of special education students, and many of them are succeeding, with the assistance of supportive services, in the school's Computer Specialty magnet.

In effect, then, one of the components of the vocational education schools and programs we visited is the use of vocationally oriented courses to address the particular educational requirements of special needs secondary students. Vocational education is viewed as an appropriate "medium" in which to attack these students' special educational problems. Co-op jobs help to keep students in school; combined with high behavioral expectations and intensive remediation, they can turn some disaffected students around. Special education students are taking regular vocational education classes and receiving the support they need to succeed. Special curricula are being implemented for students whose English proficiency is limited or whose educational deficits are severe. In the schools we visited, these types of programs were reported to play an important role in the schools' educational offerings for all students, and most of our respondents commented that such courses are integral to their overall vocational offerings.

Cooperative Education

As noted throughout this discussion, most of the vocational educators we interviewed identified a strong cooperative education program as a key component in effective vocational education at the high school level. While there is some variation in the organization of co-op across districts, in general co-op programs include a part-time job (typically 20 hours per week) accompanied by a classroom component during which students focus on employability skills, work on job-related activities such as maintaining records of earnings or completing income tax forms, discuss methods of dealing with job-related problems, and the like. Employers of co-op students must agree to complete periodic evaluations of students' performance and contribute input to student grades for the course. Students receive credit toward graduation for co-op; thus they are receiving credit for working as well as for co-op class. As with scheduling, the amount of credit allowed for co-op varies. In many localities, participation restricted to the senior year, although in some districts students can enroll in co-op as either juniors or seniors, and some schools permit students to take co-op for two years.

The objectives of co-op follow those of vocational education generally. At the Randolph Center, for example, students take co-op in their field of training (e.g., dental assisting, culinary arts) and thus it is an integral part of their occupationally specific vocational program. While the High School Academies do not call their junior and senior-year job placements "co-op," the intent is the same. Elsewhere, as at Washington High in Milwaukee or Eridley in Minnesota, co-op is primarily exploratory in nature, with the objective to orient students to the world of work rather than to prepare them for a job in a specific occupation. In either case, however, an important objective is to inculcate appropriate job behaviors. In some sense, then, co-op is "transitional." Students are working at real jobs, but they are more closely supervised than they would be in the "real world," and they have access to more support both on the job and at school.

Employers monitor their progress; the co-op coordinator visits the workplace several times a semester; and students can discuss specific work-related issues in class. Thus co-op, by virtue of being both a job and an educational experience, provides students with a head start into the labor force and, if it works as intended, facilitates their transition to adulthood.

Virtually all the study's respondents expressed very strong support for co-op.[4] In fact, in the view of many teachers and administrators, one of the chief disadvantages of increased high school graduation requirements is that many students no longer have time in their schedules to participate in co-op, which requires that most regular courses be completed before the beginning of the senior year.

Perhaps one of the most important benefits of co-op is its contribution to student self-confidence and self-esteem. First, most schools require students to have met certain milestones in order to be eligible for co-op. At Randolph, for example, they must have achieved a B average in their vocational courses, and at Washington High they must have completed their basic graduation requirements. Thus co-op is something to be earned, and students begin their participation with a feeling of having achieved some level of personal competence in school. Perhaps more important in the view of many teachers and administrators, is the fact that for many students co-op is their first real experience of success in the adult world. They are treated like adults and expected to act accordingly; as one instructor pointed out, many students find that they can succeed, thus gaining the self-esteem and confidence that will facilitate their movement from the somewhat protected environment of school into the labor market. Finally, for many students the co-op job is their first experience of earning money and thus having access to discretionary funds that many of their classmates take for granted. All of these factors are extremely important, particularly for economically and educationally disadvantaged students who have experienced considerable failure and frustration in their lives.

## Outcomes of Effective Vocational Education

The schools we visited do not routinely track the postgraduation employment or educational experiences of their students except as a part of periodic district or state-required follow-up studies. Thus, to the extent that a state, such as Minnesota, conducts follow-up studies in conjunction with evaluation or monitoring activities, some longitudinal information on student outcomes may be available. Additionally, in some localities, attempts are made to determine immediate postschool outcomes, including

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[4]Localities that do not have an adequate supply of jobs to support co-op programs also recognize its benefits. Schools in such areas often substitute either simulated work in the school setting or unpaid volunteer work (such as in daycare centers, nursing homes, etc., depending on student interest and capabilities) for actual co-op. Some of the rural communities in Minnesota, for example, use these alternatives to co-op because of the limited availability of suitable co-op jobs for high school students.

enrollment in postsecondary institutions or job placement. Elsewhere, however, outcome information tends to be primarily anecdotal in nature, based on students' statements of postschool plans, the reports of parents, or teachers who try to keep up with graduates rather than on systematic information collection activities.

Postgraduate surveys are expensive, and school administrators claim that they lack the resources to perform systematic follow-up of program completers. Unless a district or state provides resources (including design, conduct, and analysis of information collected), schools are limited in their capacity to investigate the extent to which participation in vocational programs has a measurable payoff for students. This does not mean, however, that school administrators fail to recognize the importance of ongoing evaluation of their efforts. When asked about outcomes, both school and district administrators tend to point to what one might term "intermediate" outcomes, including particularly school attendance and retention rates, as measures of their programs' success.

Information we were able to obtain on these intermediate outcomes, as well as on the traditional student outcomes of secondary vocational education (i.e., postsecondary enrollments and job placements), are presented in this section. As noted in the previous chapter, postsecondary enrollments and job placements are discussed in the context of the specific goals of the programs and schools we visited.

## Attendance and Retention Rates

When asked for evidence of the quality and effectiveness of their vocational courses and programs, administrators often point to attendance as an indicator of their success. In Philadelphia, for example, the citywide high school average daily attendance is 67 percent. In each of the three schools we visited, however, attendance is considerably higher. At Randolph, daily attendance runs between 83 and 85 percent. The High School Academies have an overall attendance rate of 91 percent; the Business Academies report 95 percent, and the Health Academy at Overbrook High School has achieved 96 percent. The Saul School reports an average daily attendance of 96 percent. The Academies and Saul also achieve much higher student retention than characterizes other high schools in the district. While the official annual districtwide dropout rate in Philadelphia is 9.8 percent, the Academies retain 99 percent of their students. Ninety-one percent of Academy students graduate (versus 77 percent districtwide). Saul's graduation rate is approximately 90 percent.[5]

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[5]Randolph's dropout rate is somewhat higher than that reported by the Academies and Saul--between 10 and 12 percent. School administrators commented, however, that not all of these students actually leave school. Because of the Center's week-about schedule, students who are doing poorly in their academic programs may have to drop their vocational education in order to complete their academic graduation requirements. Further, the Center has a very high proportion (28 percent) of special education students; dropout rates among these students tend to be higher.

As a comprehensive high school, Washington High in Milwaukee does not keep separate attendance records for students enrolled in vocational education. The school's overall attendance averages 82 percent, and one of the specific goals of the school's improvement activities is to increase that rate. The dropout rate, which runs 10 to 12 percent per year, is also a focus of school improvement activities. One of the strategies currently being tried to improve these statistics is the previously mentioned pre-co-op program intended to keep highly at-risk students in school to graduation. Thus vocational education is seen as integral to the school's efforts to retain and graduate students.

Additionally, regular co-op coordinators in several settings identified co-op as a critical component in dropout prevention. As one coordinator commented, many students want to take co-op, and since they have to be in good standing at school to participate, the program has a holding power over such students. While the evidence in this regard is largely anecdotal, observations at the schools we visited suggest that vocational education does work for some students in terms of sufficiently engaging their interest to keep them in school.

Overall, secondary schools in Minnesota report substantially lower dropout rates than do the other schools we visited. In the communities served by the Woodland Cooperative Center, for example, the annual dropout rate averages two to three percent per year. Nevertheless, these communities are using vocational education as a mechanism to attract students back to school. An Alternative Education Center, funded primarily through state vocational education funds,[6] is attracting 60 to 70 percent of these dropouts back to school. Students spend four periods a day at the Center, working on academic courses they need to graduate, employability skills development, and activities designed to improve self-esteem. They spend the remainder of the school day in regular or vocational classes or in co-op. Thus the program, which combines academic, vocational, and "life skills" components, is another example of an innovative use of vocational education curricula and resources whose effectiveness is measured by its administrators in terms of student retention.

## Job Placements and Postsecondary Enrollments

Much of the research on the effectiveness of secondary vocational education focuses on the benefits that accrue to its participants. While the chief benefit of job training is obviously placement in a training-related job with earnings potential that exceeds what would be expected in the absence of training, because of the perceived value of continued education, enrollment in postsecondary education or training is also considered a legitimate outcome, particularly to the extent that students enroll in fields related to their high school training. Thus a rigorous determination of "effectiveness," or "exemplariness," should be based on levels of achievement on one or both of these measures.

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[6]Perkins funds for handicapped and disadvantaged students were used to purchase a computerized, individualized basic skills package and a teacher aide for the 1986-87 school year.

All of the schools we visited cited one or both of these variables as important indicators, depending on their stated educational goals, of their programs' effectiveness. However, none of the schools collects all the information necessary to measure this achievement in any systematic way. The schools that focus on job training (principally the Randolph Skills Center and the Business Academy in Philadelphia) do have placement information as well as counts of postsecondary enrollments, but they tend not to have information on the nature of job placements or on the postsecondary programs that students enroll in. Further, although enrollment in postsecondary vocational programs or in college academic curricula is a principal goal for many of the programs we visited,[7] few of the schools have systematic information on the postsecondary enrollments of their vocational graduates, and none has information on what the students actually take (or whether they complete postsecondary school). Even so, review of the data that are available from the schools we visited does provide some insights into the postgraduation experiences of students who have attended schools or programs that can, based on other evidence discussed earlier in this chapter, be considered effective.

The principal goal of the Randolph Center is training of students for immediate entry into the labor force. The school's success at achieving this goal is suggested by a high placement rate; according to a speech by the Governor of Pennsylvania, the school placed nearly 80 percent of its graduates in spring 1986, and the projected rate for 1987 was 82 percent. The principal's target is 85 percent. Information on the training relatedness of these placements was not available, however. The school also sends a number of students to postsecondary education; students we talked with were enrolling in chef's training schools, a proprietary aeronautics program, and various four-year schools in fields related to their training. The Philadelphia Business Academy, in one-year follow-up surveys of graduates, reports that 86 percent of the 1984 graduates were employed or in postsecondary school; the figure for 1985 graduates was 87 percent. Among 1986 graduates, 43 percent were employed, 25 percent were enrolled in postsecondary institutions, and only eight percent were unemployed (compared with a national unemployment rate of 19 percent for youth overall and 40 percent for black youth). Thus these schools are graduating students who achieve at least initial success in the labor market.

Both the Computer Specialty Program at Washington High School in Milwaukee and the Saul School in Philadelphia have an essentially dual mission; that is, both stress enrollment in postsecondary institutions and training-related job placements as acceptable alternatives for their

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[7]In this regard, it is interesting that many of the vocational education instructors we interviewed pointed out that the emphasis on enrollment in postsecondary education can be deceiving; a more appropriate measure of effectiveness for both academic and vocational students is graduation from postsecondary programs, on which virtually no schools apparently have good information. Perhaps somewhat defensively, vocational educators tend to believe that their students would likely approximate the experience of nonvocational high school graduates if postsecondary completion rather than enrollment were used as a criterion of effectiveness. This is an issue that probably needs more attention in future research.

students and hence as appropriate measures of their programs' success. While the Computer Specialty does not maintain statistics on its graduates, teachers and administrators at Washington believe that the postsecondary enrollment rate of program completers is considerably higher than the school's overall 35 to 40 percent. The Saul School in Philadelphia sends upwards of two-thirds[8] of its graduates to postsecondary institutions; most enter institutions where they can pursue fields related to the agricultural sciences training they receive at Saul (Pennsylvania State, Temple, Delaware Valley State). The school's commitment to postsecondary enrollments is reflected by the policy of posting a list of all seniors who have been accepted to college.

The Health Academy at Overbrook High School in Philadelphia has as its primary goal to send students to further education or training. While this academy is too new to have graduated a class, a sister Health Academy (at King High School) sent 13 of the first 17 graduates to postsecondary institutions; the other four students entered the military. In terms of postsecondary or later labor market success, it is too early to tell how these new programs will fare.

The goal of postsecondary enrollment follows logically from the stated mission of secondary vocational education in Minnesota, which emphasizes career exploration rather than skill training. Most of our respondents agreed that while some of their students do acquire sufficient skills to enter the labor force immediately after high school, their expectation is that students will attend postsecondary institutions, with those who develop specific occupational interests as a result of their high school vocational courses likely to attend one of the state's well-regarded area vocational-technical institutes. Data available from the three schools we visited suggest that postsecondary enrollment is consistently high among vocational education participants.[9]

Of the 228 1985 graduates who had participated in vocational programs at the Wright Vocational Cooperative, findings of a one-year follow-up survey indicated that 47 percent were enrolled in postsecondary institutions (institutional type was not specified). Forty-three percent of those not enrolled were employed, as were 25 percent of students enrolled in school. Only three percent were unemployed. At Fridley High School, 85 percent of the 264 responding graduates of the class of 1984 were attending some type of postsecondary institution, and 75 percent were employed.[10] (It is

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[8]This number is down somewhat from the postsecondary enrollment rate the school formerly achieved. A study completed in the early 1980s reported that over 90 percent of the school's graduates went on to college.

[9]Secondary schools in Minnesota, based on state encouragement or requirement, routinely perform followup surveys of their graduates. The Woodland Center, acting on the recommendation of a 1981 state evaluation, has conducted followup surveys of the classes of 1981 and 1985. Fridley High School undertakes a student followup survey every five years, and the Wright Center also conducts such a survey in response to state requirements.

[10]This cohort included nonvocational as well as vocational students.

interesting that 47 percent of respondents reported having been in a general program in high school). Forty-five percent were attending a college or university; 13 percent, a community college; and 27 percent, a postsecondary vocational school.

The Woodland Cooperative Center provided follow-up information on 1981 and 1985 graduates. Fifty-nine percent of 1981 graduates and sixty-three percent of 1985 graduates were attending postsecondary institutions one year after graduation. Thirty-one and 30 percent, respectively, were enrolled in vocational schools; the remainder, in two or four-year colleges. Additionally, three percent of 1981 graduates, and seven percent of 1985 graduates, were enlisted in the military, where they would likely have been engaged in vocational training. Five-year follow-up information on the 1981 graduates indicated that 20 percent of respondents were still in school, while 69 percent were employed, and five percent were in the military. No data were available, however, on the relationship between students' jobs and the vocational education they received in either secondary or postsecondary school.

As this discussion indicates, schools vary substantially on the extent to which they attempt to track the job placement or postsecondary enrollment patterns of their graduates. In four of the schools we visited, data on actual postsecondary enrollments were not available, although most schools had some information on students' plans to attend school after graduation. Even the schools in Minnesota that perform follow-up surveys do not obtain information on the relationship between vocational training and job types or types of postsecondary programs. The extent to which vocational courses pay off for students in terms of employment or earnings cannot be determined. Thus the ability of researchers to verify the successes of these schools is limited. Inferences regarding effectiveness must therefore rely on within-school factors, like improved attendance and retention; reports of students, teachers, guidance counselors, and administrators; and other types of observational evidence (e.g., school climate, student morale) rather than on "hard" data.

Given the relative time and resources required to perform useful follow-up surveys, it is unlikely that most high schools in the country, absent special federal or state mandates or assistance, can be expected to provide documentation of their successes. Thus a more promising approach to determining the payoff of vocational education is probably the longitudinal studies that such federal agencies as the Departments of Education and Labor support. It is important, however, that such studies account for the differences in philosophy and goals of vocational education in the many school districts across the country. The outcomes tabulated should take into account the educational goals intended.

## Transportability of Effective Vocational Programs

An important issue in the context of school improvement is the extent to which effective practices are transportable from one setting to another, and thus can serve as "models" for other school systems to adopt or adapt in their efforts to ensure high-quality educational services. This issue is

particularly relevant to secondary vocational education, which is currently facing the same challenges as academic education along with some that are unique to vocational programs. Given the multiplicity of factors that characterize effective vocational education at the secondary level, including particularly the leadership capabilities of individuals, the quality and commitment of teachers, and the need for programs to "work" within idiosyncratic settings, the likelihood that effective vocational programs can move from one place to another may be limited.

Nevertheless, some of our observations during the study suggest that exemplary models and strategies of vocational education are susceptible to adoption or adaptation in other settings, particularly when those settings share some of the characteristics of the model program's context. First, transportability, or dissemination, is often thought of in a cross-site sense, but our observations in Philadelphia and Milwaukee suggest that "within-site" transfer of model programs is also a legitimate way to view transportability.

In Philadelphia, the High School Academies represent a model of exemplary vocational education that was initially conceived and implemented on a small scale to attack a particular local problem but has subsequently been refined and expanded throughout the school district, as well as elsewhere in the country. Thus while the first academies were configured to provide occupationally specific skill training to highly at-risk youth, more recent iterations of the model emphasize broader career development goals, participation of lower risk youth, a high level of integration of academic and vocational components, and a greater focus on preparation for postsecondary education rather than immediate job placements. The fundamental characteristics of the model have remained the same; all the academies are organized along a school-within-a-school structure, use block rostering (in which students remain together throughout the school day), provide a high degree of structure for students, and retain a high level of private-sector involvement. Each is also somewhat unique, reflecting the environment of the school in which it is located and other characteristics relevant to its specific occupational or career orientation.

Similarly, Milwaukee has implemented both magnet programs within comprehensive high schools and magnet high schools throughout the city. Again, while each varies according to its environment, overall the organization and philosophy of the programs constitute a model that the school system has been able to implement across the schools in the city.

More broadly, we also observed the more traditional transfer of models, or components of models, across sites. Perhaps the most striking example, because of its apparent incongruity, is the presence of a specialty vocational agricultural high school in a metropolitan setting. The Saul High School of Agricultural Sciences in Philadelphia was the first such endeavor, and in years past the apparent incongruity of cows, horses, and pastures in the city raised eyebrows. The strategy worked in Philadelphia, as the school's historically high attendance, graduation, postsecondary enrollment, and job placement rates testify. Perhaps even more striking an indicator of this model's efficacy has been its popularity in the community: in years past, the school has had four applicants for each slot. More recently, since the city has established a number of other magnet programs

and schools, the school's popularity has declined somewhat, but still has two applicants per slot. Furthermore, a least two other large cities--Milwaukee and Chicago--have established vocational agricultural high schools in recent years, and expectations for these schools are high in both communities.

When Philadelphia decided to establish area skill centers in the mid-1970s, administrators visited other well-known centers around the country, notably the Skyline Center in Dallas, and adapted some of the organizational features of other centers. Additionally, Randolph adopted many of the vocational curricula available from the Mid-America Vocational Curriculum Consortium in Oklahoma. Thus while the school district did not precisely replicate a model program from elsewhere, officials did acquire information and materials from other sources to facilitate their establishment of a highly effective area school that has continued to be an important component of effective vocational education in Philadelphia.

Finally, the model of area vocational cooperative centers that groups of small school districts have formed in Minnesota has permitted the concentration of resources necessary to provide the type of exploratory vocational education the state has adopted to students who otherwise would likely have had very limited access to vocational education at the secondary level. This model of vocational education makes sense in the types of settings in which it occurs, and although some of Minnesota's vocational cooperatives have not survived, administrators of those that have continue to view this model as a useful strategy for rural communities in that state and elsewhere.

These examples suggest that dissemination of effective programs and practices in secondary vocational education is a reasonable strategy. Among the characteristics that appear to maximize the likelihood of successful implementation are the flexibility to adapt programs to local circumstances, a willingness to make modifications over time in response to changing conditions, careful and thoughtful planning by district and school administrators, and a commitment to vocational education as a an important component in a district's overall secondary educational program.

## Challenges to High School Vocational Education

Despite their success in providing quality vocational education, in each of the schools and localities we visited, discussion of educational challenges and problems quickly became a key theme. Some of these issues are affecting public education in general and others are particularly germane to vocational training in late-century America. Unexpectedly, but perhaps not surprisingly, one of the most salient indicators of the effectiveness of these schools and programs is their success in implementing strategies to respond to the challenges of the times.

## The Effects of the Academic Reform Movement

Allegations concerning the mediocrity of public education in this decade have led many states and local school districts to adopt measures for improving educational quality and student outcomes. Among the changes that have been widely implemented are increased academic graduation requirements, competency tests that students must pass to graduate from high school, and increasing attention to the appropriate role of vocational education and other electives in the academic preparation of high school youth. Of particular interest regarding vocational education's role is whether participation in vocational courses helps to reinforce students' academic achievement.

Graduation and competency requirements. Increased graduation requirements and mandated basic skills tests, both of which are being implemented in many localities, have placed major constraints on the time students have available for vocational courses and other electives during their high school years. These new requirements have posed challenges for vocational education in virtually all of the schools that we visited. In Philadelphia, new state-mandated graduation requirements (called Chapter 5) have reduced the elective time available for students who want to enter a vocational program; in many instances students have to postpone vocational education until eleventh grade, and if they fail required academic courses, they may have to drop vocational education altogether. Thus, for example, cosmetology students at the Randolph Skills Center are often unable to complete the number of contact hours required for eligibility to take the state licensing examination. To accommodate the needs of such students, the school permits them to take classes as "postgraduates" after they have finished high school. The Saul school in Philadelphia employs another strategy, operating an extended day to enable its students to meet the mandated graduation requirements and obtain enough credits to complete their vocational programs.

In suburban Minneapolis, vocational educators are trying, not entirely successfully, to correct students' misperception that foreign language is an admission requirement for the state university that precludes enrollment in vocational classes. Industrial-education teachers at Washington High School in Milwaukee have reorganized the content of their programs to offer students the opportunity to take vocational education within the constraints of increased graduation requirements; part of this reorganization has involved changing the focus of these courses from occupationally specific skill training to exploratory vocational education.

While increasing graduation requirements have reduced students' time for electives, the problem becomes even more complex in districts that also require students to pass competency tests in order to graduate. In Milwaukee, students who have not passed reading and math competencies by the end of eighth grade must take competency classes in addition to their other required high school courses, a requirement that further limits the time available for vocational education and other electives. Concerned about the impact of increased requirements on "at-risk" students and the survival of vocational programs, teachers are developing creative vocational options to try to keep students in school and encourage them to work on academic achievement. For example, Washington High School has recently implemented a

pre-co-op program for the most highly at-risk students that combines a paid job with special individualized remediation intended to help students fulfill graduation requirements. Additionally, regular co-op is used as a "carrot" for increasing students' motivation to stay in school and in good academic standing.

Integration of academic and vocational education. The role of vocational education in secondary students' overall educational experience is also a specific issue that has emerged in the past decade. Of particular interest is the extent to which vocational classes help to reinforce (or, in some instances, remediate) basic academic skills. In addition to teaching the vocational skills that constitute their official syllabus, are vocational teachers contributing to the educational improvement objectives of the academic reform movement by helping to ensure that their students possess the basic academic skills thought critical to successful adult functioning?

In the schools we visited, the answer to this question varies. At one end of the spectrum are the High School Academies in Philadelphia and the Career Specialty program at Washington High in Milwaukee. Based on its goal to make explicit to students the link between traditional academic coursework and career success, the academies program uses team teaching and career-specific curriculum materials to achieve a high degree of integration in academic and vocational instruction. Washington High's Computer Data Processing program is highly integrated with the school's mathematics department. The program's teachers are math teachers; there is an algebra prerequisite; and the implementation of the program has been accompanied by a striking level of integration of computer technology into nearly all academic and vocational departments in the school. This integration is one reflection of the principal's belief that basic skills instruction is the responsibility of every teacher in the school The success of the school's efforts at curricular integration is reflected in a recent evaluation of the school's industrial education program: "The use of basic and academic skills was observed in several classes through writing, mathematical, and computational skills."

In some cases vocational educators are attempting to attract brighter students to vocational education by integrating academic and vocational components. A new high tech electronics program recently initiated at Randolph Skills Center in Philadelphia pairs the center with one comprehensive public and one parochial high school. The program is organized to ensure that students will have the academic training necessary for success in the specialized vocational courses. Both components have been designed collaboratively by the vocational and academic faculty, who meet periodically to review student progress and make any needed adjustments in the program.

In other (and perhaps more typical) schools, there is limited evidence of a conscious intent to introduce academic skills into vocational courses. In the Woodland Cooperative in Minnesota, for example, students enrolling in Machine Shop II may elect an eight-credit version of the course that includes two periods a day of related math. Further, since no math or science courses are required after the tenth grade in the cooperating high

schools, vocational teachers in courses like electronics commented that they routinely review or introduce relevant academic topics in their classes.

On the other hand, even when vocational courses do include academic components, school and district administrators do not always encourage strong commitment to the strategy of infusion by legitimizing the academic status of vocational courses. For example, the director of the Wright Vocational Cooperative Center in Buffalo, Minnesota, responding to increased graduation requirements in the participating school districts, has tried to persuade home schools to grant science and math credit for some of the Center's more academically rigorous courses, such as electronics and medical occupations. After long discussions with the Center's governing board and apparent agreement, however, one local school administrator adamantly said, "I'm not going to give more than one-quarter [academic] credit," even though the courses in question are full-year courses.

While some vocational educators enthusiastically embrace the idea of integrating academic and vocational instruction, others do not believe that vocational programs, whose objectives are to train students for good entry-level jobs, can or should realistically assume responsibility for teaching students skills that they failed to master in their first nine or 10 years in school. Nor do they believe that it makes sense to deny students the opportunity to participate in vocational education because of poor academic skills. An administrator at the Randolph Skills Center in Philadelphia offered the following view, which acknowledges the complexity of the problem for inner-city youth in particular. He commented that students should have a good grounding in basic skills by the end of the ninth or tenth grade; if they do not, keeping them out of vocational education in their last two years is not likely to increase their academic achievement unless "something radically different is done" in their academic courses. He and others at Randolph argue that, for such students, vocational education may keep them in school and hence serve as a vehicle for at least obliquely exposing them to basic academic skills as they learn or review the math and reading they need to pass their vocational courses. A teacher at Washington High, who concurred in this view, pointed out that vocational education cannot really teach students to read, although it can to some extent help if vocational teachers are able to "camouflage" the academics within vocational content.

It is likely that we observed relatively more infusion of academic skills--and attention to this issue--in the schools we visited because of their overall high quality and innovativeness. The issue of vocational/academic program integration is complex. In some localities vocational and academic teachers have very little regular communication; both groups concede that they "could do more" to ensure the integration of students' academic and vocational experiences, but there is no great rush to take the initiative. This lack of communication is most understandable in settings where academic and vocational components are in separate locations, as they are in the shared-time centers we visited in Philadelphia and Minnesota. Even in a specialty vocational school like Saul, however, there appears to be relatively little planned and deliberate infusion of academics into vocational courses or, for that matter, use of vocational subject matter in academic instruction. The academic component is both literally and metaphorically on one side of the boulevard, and the vocational is mostly on the other.

While the organizational structure of vocational education may militate against integration, the problem is likely a larger one than simply where the buildings are located. There are clearly traditions, sagas, and prejudices involved that make structural and programmatic changes difficult. It is a challenge that many of the programs we visited are attempting to meet, but it is clear that more needs to be done if vocational education is to play a major role in students' academic progress in high school. The fact is that coordination of disparate parts of the high school curriculum is hard work, and progress in that direction may be a painstaking task. Our impression is that integration of academic and vocational education is most easily accomplished as part of a whole new "gestalt" approach to education, such as Philadelphia's academies or Milwaukee's career specialty programs.

Declining Enrollments

In addition to the challenges posed by increasing graduation requirements, competency tests, and other results of nationwide school improvement efforts, vocational education programs are particularly hard hit by the overall enrollment declines that have occurred in the post-baby boom era. As with other challenges to vocational education in late-century America, the implications of--and local responses to--declining enrollments are complex and variable.

At the most superficial level, increased academic requirements mean declining enrollments for vocational education because many students do not have time in their schedules to elect vocational courses. In Philadelphia, for example, increased graduation requirements have meant that students who want to complete a vocational program at Randolph must find the time to complete 25 credits, nine of which are in vocational education (versus the 21 required for graduation). To graduate from Saul, students must complete 29 Carnegie units. In both instances, students have to use virtually all available electives, and then some, to participate in vocational education. Thus students who want vocational programs have to make sacrifices that nonvocational students do not--longer school days, less time for other elective courses like art or music, participation in sports and other extracurricular activities, and the like. (It is ironic that the vocational students must spend more time in school to graduate than is required of students on a traditional academic track.)

Factors other than increased attention to academic curricula have affected vocational enrollments as well. In Philadelphia and Milwaukee, administrators commented that citywide implementation of magnet programs has tended to draw students away from traditional vocational education, although this trend does not necessarily mean an absolute decline in enrollments at individual schools. For example, during the 1970s the Saul School had four applicants for each available slot. By the time of our visit, that number had declined to two applicants per slot. Declining overall enrollments in combination with the district's establishment of a number of citywide magnet programs were offered as explanations for the change. Inevitably Saul has become less selective, and is gradually adjusting to the changing characteristics of the students it enrolls. Nevertheless, Saul has not faced (and probably will not face) the implications of not having enough applicants to fill the slots available.

In Milwaukee, the citywide system of magnet schools and programs tends to draw students, particularly the brighter ones, away from "traditional" vocational programs. An industrial-technical education instructor commented that in years past, some of the school's best students enrolled in his courses, but they no longer do so. As a result, that department offers fewer survey courses than it used to. Further, enrollments in home economics have declined at Washington High, and the co-op programs in these and other departments engage in active recruitment to obtain students. The Computer Data Processing specialty, however, has 200 applicants for the 110 slots available annually for black students.[11]

While all of these factors affect the number of students enrolling in vocational education, equally important is the absolute decline in the number of high school students. In the case of Randolph and other shared-time vocational schools such as the Wright Vocational Center in Minnesota, the home comprehensive high schools, faced with declining enrollments and potential reductions in force, may actively discourage students from enrolling in vocational courses or programs. Randolph's enrollment is down to about 800 students from a capacity of almost 1,500. According to a vocational instructor at Wright, "The high schools see us as a threat because of declining enrollment. We're just one more place for their students to go and not be in their classes."

In Fridley, Minnesota, a suburb of the twin cities, the school-age population has declined by about 40 percent in the past 15 years. This change has had important implications for the district's school system, and particularly for vocational education. Following the district's philosophy to provide for all its students' educational needs, the high school has thus far managed to resist joining a vocational cooperative; the view is that such alternatives as multidistrict centers or magnet programs will likely result in a vocational "track" that will discourage the broadly based participation in vocational education that the community has traditionally valued. On the other hand, vocational education in Fridley is shrinking. At least one program has been dropped; enrollment in several programs is increasingly marginal and two departments have been reduced to a single instructor. Thus the superintendent sees change, though regrettable, as inevitable if the district is to maintain the scope of offerings that students--and parents--desire.

How are good schools responding? One way is to implement new programs that students will want to take, e.g., the Randolph Center's new high tech electronics program. In addition to the objectives of attracting brighter students to vocational education and operating a joint program that will improve the integration of academic and vocational components, the program has incorporated an interesting strategy for combatting the effects of the district's overall declining enrollments on vocational education. Based on the experience that the comprehensive high schools are discouraging their students (especially brighter ones) from electing to attend the shared-time

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[11] As one of the programs designed to improve racial balance in the city's high schools, the computer specialty has 110 slots available for black students and 110 available for students of other ethnicities in each entering freshman class.

Center beginning in the tenth grade, the program's designers have structured the program such that interested students enroll in the paired comprehensive high schools as ninth graders. This strategy is attracting students to the comprehensive schools, which have their own enrollment problems, as well as facilitating their enrollment at Randolph as tenth graders.

Similarly, the industrial-technical education department at Washington High has established a Technology Resource Lab, which they believe will attract even the computer specialty students to the school's basement to learn about real-world applications of new technology. Further, the department sponsors tours for elementary students and actively recruits eighth graders who may be interested in attending the school. Other schools we visited are also trying to attract students--some by offering vocationally oriented dropout prevention programs, others by implementing articulation agreements with postsecondary technical institutes, still others by volunteering to establish special districtwide programs for limited English proficient or special education students. One indication, then, of the effectiveness of the schools we visited is the variety of creative approaches they are using to attract students by offering good vocational education that will serve the needs of the full spectrum of students in their districts.

Declining Resources

All vocational education is expensive, and high-quality vocational education, particularly in an era of very rapidly changing technology, is especially so. To keep up, schools need expensive electronic equipment, such as robots, state-of-the art computers, and other hardware. Even the less highly technical programs need better equipment--most of the persons we interviewed see little sense in teaching typing, even on IBM selectrics, when soon nearly all employers will be doing word processing exclusively on some type of computer. Further, costs are in some ways independent of the number of students who elect vocational education and therefore do not proportionally decline with declining enrollments.[12] A district administrator in Milwaukee, for example, pointed out that "You need to maintain an industrial arts laboratory the same whether it's used for two sections of students or for ten."

Complicating the issue for districts that try to provide high-quality vocational education is the reluctance of many administrators to commit what often--in an overall district budget--may seem an inordinate amount of resources. (The computerized milling equipment at Washington High, for example, cost $22,000--for a single piece of high tech equipment!) In this connection, most of the persons we interviewed during our visits concurred in the view one administrator, who commented that in vocational education, particularly at the secondary level, "It's hard to get rid of the 'lathe mentality' where the expectation is that you buy a piece of equipment and it's good for 20 years."

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[12]Of course, the problem of limited resources is exacerbated by declining enrollments, given that funds are typically allocated on the basis of the number of students enrolled in vocational classes.

Administrators are using a number of strategies to ensure the relevance and effectiveness of vocational programs in an era of declining resources. At the Randolph Center, for example, the principal applied for--and won--a grant that enabled the Center to set up its high tech electronics program that offers students a variety of specialties, including robotics, electronic product repair, biomedical instrument repair, and computer electronic technology. All of the academy programs in Philadelphia garner significant private-sector funding, a total of approximately $800,000 in school year 1985-86. These funds support the "extras" needed to operate the academies, including extra teachers, materials and supplies, state-of-the-art equipment, needed renovations, and the like.

Most of the persons we interviewed commented on the importance of private-sector support that goes well beyond the donations of equipment that have traditionally been the chief contributions of business and industry to secondary vocational education. While such donations, particularly if the equipment is new, are useful, dollars provide significantly more latitude for program operations and enrichment than other types of support. The computer specialty at Washington High is a case in point. In order to train students who will be able to compete in the labor force, the program is committed to state-of-the-art equipment. The school has recently purchased an IBM System 36 with $40,000 raised over the past three years. The program's "implementor" (a local title) is currently developing funding documents for use in the business community as well as with school district decisionmakers in a campaign to raise funds for a new VAX.

Creative organizational configurations are another strategy considered by districts in their attempts to provide high-quality vocational education with limited resources. A number of the small school districts in Minnesota, for example, are members of vocational cooperatives, where districts pool their resources in order to offer a broader range of vocational programs than would be possible for any individual district. The superintendent in Fridley, Minnesota, is currently considering this alternative, along with such others as a bond issue, as possible strategies for maintaining the level and quality of vocational education to which his district has always been committed.

Finally, for "special" purposes, districts make creative use of available federal funds. Washington High is using Perkins disadvantaged setaside funds to implement a new pre-co-op program for highly at-risk students, and the vocational magnet programs at Washington and elsewhere in the district were established with federal magnet funds. The Woodland Cooperative in Minnesota used setaside funds to purchase a computerized, individualized basic skills package and teacher aide for its Alternative Education Center, a dropout prevention program with a vocational component. The Business Academies in Philadelphia use funds from the Neighborhood Assistance Act to reimburse employers for 50 percent of the wages earned by some of the program's co-op students.

In general, then, while declining resources represent an important challenge to secondary vocational education, the programs we visited were, by and large, meeting this challenge. The energy and creativity that characterize the leadership of these programs and schools overall were being directed toward solving the problem of ensuring the quality of the programs

within the context of funding limitations. The schools and programs are generally well equipped, and while students may have to share or even come back after school for more "hands-on" time, these programs tended to have the human and physical resources to accomplish their instructional objectives.

Stigma

Many of the vocational teachers and administrators we interviewed during our visits mentioned "stigma" as a factor that they often confront as they attempt to attract students to vocational education. A cluster coordinator at the Randolph Center, for example, commented that many of the guidance counselors at the city's comprehensive high schools stereotypically view vocational education as ". . .dumb kids banging blocks together." Thus bright students are often actively discouraged from electing vocational education. This perception has been intensified in recent years as students are encouraged to focus on college enrollment and as school systems have defined school improvement in terms of more science, mathematics, and social studies, largely to the exclusion of vocational education.

When brighter students are actively discouraged from electing vocational education, students whose likelihood of being able to attend college--for academic or monetary reasons--is not high also tend to view vocational education in a negative light. This "spill-over" effect means that some students may end up with neither adequate basic academic skills nor any orientation to employment. The chairperson of the English Department at Washington High, who teaches both advanced placement English and a Chapter 1 writing lab, commented on the implications of this phenomenon.

In her view, echoed by many of our respondents, the displacement of vocational education in high school is doing a disservice to many students. Academic teachers tell students they must go to college in order to get a good job and "be successful and important." Society has thus seriously devalued blue collar jobs, and ". . .we need to let students know these jobs are okay to do, so they won't just get caught up in a pattern of academic failure and frustration." She believes that the stigma society has imposed on things like plumbing, welding, and construction has led young people to frown on vocational education and guidance counselors to "dump on it."

The principal of the Randolph Center in Philadelphia expressed the same view. In the Center's early years, the feeder high schools saw it as a dumping ground and tended to direct their lowest achieving, often disaffected, students to the Center. The Center has strongly resisted accepting students who they believe cannot succeed in their programs, and to some extent the aptitude levels of their students have increased over time, although according to administrators, the average achievement level of students at Randolph is still between the 30th and 35th percentiles.

Even in Minnesota, which has a strong tradition of vocational education at the secondary level, stigma is an issue that administrators and teachers must face. In Fridley, for example, vocational educators are bitter about what they see as the elitism of national reports like A Nation at Risk. One

vocational coordinator commented that "the worst thing in education right now is the message out of Washington that we should totally eliminate vocational education." The local implications of these trends are striking, as other institutions, families, and the public tend to "buy into" the argument that stronger academics are the sole solution to all the nation's problems. For example, Fridley officials say, surveys of employers keep harping on their desire for employees with good basic skills. The schools respond by raising academic requirements, but "the reality is that without some job-related skills, you can't even get an interview." Thus in Fridley as elsewhere, officials from the superintendent on down are actively trying to "break down the stereotypes" that plague vocational education. Among their strategies are more frequent interactions with parents to change the "birdhouse" image of vocational education.

The schools we visited actively fight stigma--by recruiting students, by implementing new programs and designing new courses that they believe will prepare students for the future, by devising mechanisms to involve parents more extensively in their students' education. These strategies are based on a consistent belief in the efficacy of vocational education for large numbers of students. Administrators at Randolph, for example, believe that high-quality, occupationally specific vocational education is a particularly important component of the overall educational offerings of large metropolitan school systems, where a significant proportion of secondary students will not--at least immediately--continue their education past high school. Administrators responsible for the Health Academy in Philadelphia and the Computer Specialty in Milwaukee believe that vocationally oriented curricula can be an effective vehicle for imparting academic and cognitive skills, for helping students to decide on career paths, and for preparing them to enter the labor market. They apply a substantial amount of personal and professional energy to making their programs sufficiently attractive to engage students and thus to accomplish these goals.

Similarly, staff and administrators in Milwaukee perceive vocational training as an important component of their district's secondary education. The Business Education Department at Washington High operates a lab in conjunction with the computer specialty, thus orienting students to "high tech" aspects of business occupations, which have potentially high payoff in the labor market. The district as a whole has made vocational education an important component in its citywide magnet initiative.

Finally, in what might be called a "new generation" of vocational education, exemplified in the High School Academies, Randolph's high tech curriculum, and Washington High's Computer Specialty, administrators and teachers, recognizing the utility of high-quality vocational training for many types of students, are fighting stigma by implementing programs that can expand options for students by preparing them for both postsecondary enrollment and good entry-level jobs with the potential for career advancement. Given the current tendency of students to work and attend school at the same time, these types of programs may be a good answer to the "banging blocks together" stigma attached to secondary vocational education in many localities as well as a means to encourage students to pursue vocational programs in high school and beyond. In summary, then, perhaps the best defense against the current stigma attached to secondary vocational

education is high-quality programs that good students will want to take. The schools we visited are working to ensure that the curricula they offer students meet the educational needs of all the students in their schools; they are attracting a relatively heterogeneous population that includes college-bound as well as noncollege-bound youth to courses in such diverse fields as automotive technology, food service, and agricultural sciences.

The Effects of the Perkins Act

In the schools we visited, there is not much sense of a federal "presence;" the funding and other aspects of the Perkins Act tend to have more influence at the district level, where administrators are responsible for allocating federal along with other funds and are responsible for implementing other provisions of federal statutes. Additionally, in states like Minnesota, most of the funding that flows from Perkins goes into postsecondary rather than secondary vocational education, a state policy that further reduces local sensitivity to the federal role in vocational education at the secondary level.

There are, however, some exceptions, and the funding and other provisions of Perkins sometimes present opportunities for local districts and schools and sometimes constitute challenges that they must address. Milwaukee, for example, has used Perkins disadvantaged setaside funds to start a special pre-co-op program for some of the city's most highly at-risk students. At the same time, district and school officials indicated that new restrictions on program improvement funds have had deleterious effects on other initiatives they are attempting. Specifically, Washington High is trying to implement a full-scale co-op component for the computer specialty program. They have been informed that since the school already has co-op (in industrial-technical education, business, marketing, and home economics-related occupations), Perkins funds cannot be used to implement the program. Further, the view of officials we interviewed is that the requirements on program improvement funds are too restrictive generally. Effective implementation and modification of a new program may take several years to accomplish, and such programs should be "given a chance" to mature before they must acquire other funding.

Whether because of Perkins or its predecessor, the "equity" provisions of federal vocational education statutes by and large appear to have facilitated needed services for special needs populations, although more so for handicapped, limited English proficient, and disadvantaged students than in the area of sex equity. At the Randolph Center, for example, we observed a relatively striking level of mainstreaming of special education students. Twenty-eight percent of the Center's student population is special education students, with Perkins setaside funds used to support "Shop Training Assistants" who work with students to ensure that they keep up in their vocational courses. Additionally, in response to recent federal

initiatives, that school is implementing strategies to integrate severely handicapped students within the school's environment.[13]

In Minnesota, Perkins funds provide special services for handicapped students, such as a vocational transition program for both handicapped and disadvantaged students, which emphasizes a "fundamental careers curriculum" including employability training and life survival skills instruction. The Wright Cooperative Center in Buffalo offers a special orientation and assessment program to help special education students decide about enrolling in vocational courses. Additionally, two of the schools we visited (Washington High and the Randolph Center) have implemented programs for limited English students, the former in machine shop and the latter in cosmetology.

On the other hand, even in exemplary schools, and even when administrators have apparently made a serious commitment, it would appear that more than the current level of federal encouragement will be required to achieve sex equity in secondary vocational education. As our interviews suggest, however, it is possible that sex equity initiatives need to be more broadly focused than primarily at vocational educators. Although to some extent self-serving, many vocational educators are probably accurate when they identify parents, the students themselves, and particularly nonvocational guidance counselors and other school faculty as sharing responsibility for lack of progress in nontraditional enrollments in vocational education.

As the experience of the Woodland Cooperative Center in Staples, Minnesota, demonstrates, the issue of sex equity is very complex. A 1981 evaluation that assessed the issue of sex role stereotyping reported the following:

> Progress is being made to assure that sex bias and sex-role stereotyping are being eliminated from center vocational programs. Interviews with seven staff members indicate that many students are aware of the opportunities for them in "nontraditional" vocational courses. Information has been given to students to increase their awareness of career opportunities available to them. Some classes cover career opportunities within the curriculum. Enrollment figures indicate that traditionally "male and female" programs have nontraditional students in almost all of the vocational classes.

The progress in this area made at the Center is evident in the fact that one-third of the students enrolled in model office are male, and accounting is evenly divided between males and females. Further, two of the officers in the FFA are female. On the other hand, the building trades and machine shop enroll males almost exclusively, and child care and health occupations enroll mostly females.

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[13]On the other hand, the District Executive Director of Career and Vocational Education reported that the matching requirements of Perkins had caused the district to lose a large amount of funds under the setaside for disadvantaged students.

The problem is similar at the Wright Center in Buffalo, Minnesota. Medical occupations, child care, and model store enroll mainly females, while electronics, machine shop, and auto mechanics enroll mainly males. Vocational instructors described the reasons: "Students say that 'electronics is for boys' and it's hard to get beyond that stereotype." The child care instructor noted that a boy who takes child care "needs to be real brave. . .because he will get teased." Further, home school staff can be responsible for promoting sex stereotyping in vocational courses. According to this teacher, "Once a counselor talked a boy out of [child care]. I was very upset. The students do a lot of stereotyping on their own. We don't need to add to it."

At the Randolph Center in Philadelphia, we heard similar views. One respondent commented that sex stereotyping is largely parentally determined, and the school can do little to change these attitudes. Even students who want to enter nontraditional fields are discouraged or forbidden, primarily by parents but also by advisors at their home schools. For example, one girl who wanted to attend Randolph to become a plumber was told by her home school counselor that it was against the law for girls to be plumbers; she remained at her home school in the business program.

Even so, as the Woodland evaluation and the experience of Randolph illustrate, some progress is being made. Twenty-two percent of the female students at Randolph are enrolled in traditionally "male" occupations, with five concentrating in welding (perhaps in part because one of the welding instructors is female) and 12 in biomedical electronics. There are nine females in the electrical program and nine in telecommunications. (On the other hand, the proportion of nontraditional enrollments among male students is much lower--only three percent.) Perhaps greater attention to the attitudes of school personnel other than vocational educators, along with active work with parents and the students themselves, is needed to increase the relatively modest accomplishments we observed in the area of sex equity.

## Summary and Conclusions

The purpose of our study was to identify and describe some characteristics of effective secondary vocational education, as well as to examine issues of evaluability and transportability. While the programs we visited were not necessarily uniformly exemplary, each provided insights into the provision of effective vocational education in a variety of settings and for a variety of students. Among the chief characteristics of the programs that appear to foster program effectiveness were the following:

- Clear and uniform understanding among administrators, teachers, parents, and students concerning the chief goals of secondary vocational education in a particular setting
- Consistent attention to the development of student self-esteem
- Strong program or school leadership, which is characterized by creativity, flexibility, and commitment to vocational education as an appropriate component of secondary education

- Inclusion of employability skills development as an integral component of vocational curricula

- Presence of a cooperative education component that provides students with support as they make the transition from school to work

- Implementation of strategies to address the problems of special needs students, including students who are handicapped, economically or educationally disadvantaged, limited English proficient, or disaffected

In terms of program evaluation, the availability of student outcome data is very limited. Thus the postsecondary or later labor market payoffs of participation in secondary vocational training are unclear. At the same time, schools do track and can document some intermediate program outcomes, including particularly increased student attendance, retention, and graduation rates. Systematic and reliable evaluation of participant outcomes will likely require well-planned (and probably costly) national or state-level longitudinal studies.

There is some evidence that effective practices can be transported from one place to another. The academies program in Philadelphia, for example, has been widely adopted or adapted both within and beyond that city. The vocational cooperative model in Minnesota seems eminently replicable in other rural school districts. Owing at least in part to the well-known effectiveness of the Saul School in Philadelphia, at least two other cities (Chicago and Milwaukee) have established urban agricultural specialty high schools in recent years. These observations suggest that, with appropriate local adaptation, an effective vocational program in one setting can in fact be reproduced in other localities.

Despite their effectiveness, every program we visited was having to cope with the problems and challenges facing all of public education in the late 1980s. Among these challenges were:

- Declining enrollments and resources

- Continuing stigma attached to student participation in high school vocational education, particularly in a decade where national attention has been focused primarily on academic improvement and reform

- Continuing difficulty in overcoming sex stereotyping

- Declining time within student schedules to elect vocational courses, in the face of increasing graduation and competency requirements

Within these problems and challenges, however, vocational educators in many localities are designing and implementing a "new generation" of vocational education programs that pay more attention to the integration of academic and vocational instruction. For example, the High School Health Academies in Philadelphia, the Randolph Center's high tech program operated

in collaboration with two nearby comprehensive high schools, and Milwaukee's Computer Specialty program all involve a high degree of collaboration between academic and vocational instructors. Further, they focus more directly than "traditional" vocational education on expanding career options for participating students, particularly in their specific emphasis on preparing students for enrollment in postsecondary institutions of all types. While the scope of our study was very limited, the fact that we found such programs as these in several settings suggests that rather than abandoning vocational education, school districts may be using its strengths in the context of broader educational improvement efforts. . .

# III. VOCATIONAL EDUCATION IN COMPREHENSIVE HIGH SCHOOLS

A large proportion of the vocational education taken by the nation's high school students is delivered in comprehensive high schools--the "typical" secondary school where students take their academic courses as well as some or all of the vocational education that is available to them in their home communities. Most comprehensive high schools offer at least some vocational education, including business and office education (typing, accounting, and the like), home economics, industrial arts (or "shop," as it is typically called), and marketing and distribution.

In some localities, comprehensive high schools offer a full range of occupationally specific vocational programs. More often, however, comprehensive high schools offer vocational education that is essentially "exploratory" in nature--designed to introduce students to a variety of potential careers rather than to train them for a job immediately following graduation. In these circumstances, secondary students who want vocational programs rather than an introductory course or two go to an area vocational center or a vocational high school for the vocational courses they elect.

In comprehensive high schools and other settings, a number of changes in recent years have had important implications for the delivery of secondary vocational education, including:

- declining enrollments
- increased graduation and competency requirements that limit the time students have available for electives, including vocational education
- shrinking education budgets
- declining popularity of vocational education, as students are encouraged to prepare for entry into postsecondary education

In response to these and other factors, school districts are adapting their delivery of vocational education in comprehensive high schools in different ways. Washington High School in Milwaukee, Wisconsin, for example, has implemented a vocationally oriented program in an effort to attract students from all over the city. As part of the district's citywide magnet programs that were first developed to achieve desegregation goals, the school operates a "career specialty program" in computer data processing, in addition to courses in "traditional" vocational education. The first case study in this section describes both of these types of vocational education at Washington High.

The second case study in the section describes a different response to changing circumstances in public education. Fridley High School in Fridley,

Minnesota, is struggling to maintain the full range of high-quality exploratory vocational programs on which it has prided itself for three decades. The only high school in a relatively small school district, Fridley illustrates some of the difficult problems and decisions facing countless suburban school districts across the country.

Washington High School
Milwaukee, Wisconsin

Nancy E. Adelman
Becky J. Hayward

# I. Overview

## The Setting

The line for first lunch is long--but not as long as it used to be, we are told. Students file through a door, inserting a bar-coded plastic identification card into a "reader." The machine responds with a green light if it is the student's correct lunch period and scans the card for a code indicating the payment required when a lunch is served. Since this is a closed campus and the cafeteria is the only show in town for over 1,600 hungry adolescents, and since nearly 56 percent of the students are eligible for free or reduced price lunches, any labor-saving improvement in accounting procedures is a welcome relief for the lunchroom staff. In fact, the system might well catch on in school cafeterias across the country.

That's what a major computer company thought when the coordinator of Washington High School's Computer Data Processing Career Specialty Program broached a unique idea.[1] If the company would provide a machine to read the cards, students in the computer specialty would develop a computer program and specifications to streamline the transfer of food service information between the school and district's central office computer. The computer company liked the idea and designed a machine especially for the purpose. Washington computer students modified the existing system and are gradually working the bugs out of it. They are rightfully proud of their accomplishment and grateful to the faculty for trusting their capabilities. As the President of the Student Government put it, "They [the faculty] let us think about the problems and work on them even if they could solve them faster."

A sense of pride--both personal and in the school--is an important goal at Washington High School. Of its 1,670 students, 40 percent score in the lowest three stanines on achievement tests in reading and math. The overall grade point average for the school is 1.7 out of a possible 4.0. The tenth grade, as a body, failed nearly one-third of their classes last year. There were 55 suspensions for every 100 ninth graders enrolled. In short, it is an inner city high school with many at-risk students. It is not, however, a school that has given up. The star in its crown is the Computer Data Processing program, but it is working successfully on many fronts to become a school that students from its own neighborhood and from all over the city choose to attend.

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[1]Milwaukee has a cluster of magnet programs, designed to help schools achieve racial balance. Called "Career Specialty Programs," they are described in detail in Section III of this case study.

## Philosophy and Goals of Education

Within the broader context of the school system's philosophy and goals of education, which are outlined in a subsequent section of this case study, Washington High School has developed statements that reflect particular areas of emphasis, given its setting and its students. Selected statements are quoted below:

- Communication and cooperation with parents and community members are a foundation in efforts to improve educational opportunities for Washington High School students. Role models from the community are vital resources to the growth of our students.

- The teaching of reading, writing and math, in the content areas by all teachers, is essential to the development of basic competencies for our many skill handicapped students.

- The continuation of a curriculum that is widely varied in both depth of instruction and variety of opportunities is essential. Wherever possible, computer technology should be incorporated into the instructional process.

- Because many students have long histories of school failure, school procedures and teacher classroom policies emphasize provision of opportunities for successful learning experiences.

- We must struggle to maintain a warm, friendly, and ordered atmosphere that provides students and staff with a feeling of personal security even though many students suffer from the lack of such an environment in their daily lives and sometimes threaten the atmosphere in school.

- Our strengths, whether curriculum such as the data processing specialty, or our co-curriculum such as our basketball team or math track team, must be emphasized to develop the positive self-image vital to both the individual student and to the institution.

## School Climate

Washington High School sits on a broad, four-lane boulevard with a grassy median strip. With its athletic fields, it covers a city block and is the largest school building in the school system. The "old main" section of the school opened in 1924; the most recent addition is a gym and 25 meter swimming pool completed in 1985.

At mid-morning on a brisk fall day there is relatively little vehicular traffic on the boulevard and virtually no pedestrian traffic on the sidewalks in front of the school. We enter the school through an unlocked main door and are directed to the second floor office by a pleasant hall monitor who has been told to expect us and assigns a student guide to show us the way.

While there is no sense that Washington High is a fortress under seige, it is clearly a tightly buttoned-down school. Five nonuniformed security guards are on the premises during the school day with a mandate to patrol the hallways, prevent fights, and generally establish an adult presence. They keep in touch with walkie-talkies. In addition, certain teachers are assigned as hall supervisors during class periods, with instructions to patrol stairwells, check lavatories, and query all students moving about. All teachers are expected to monitor the corridor in front of their own rooms between classes.

The student disciplinary code is uncompromising: students are suspended for infractions ranging from smoking to loitering to abusive language. More serious offenses (drugs, assault, weapons, vandalism) result in suspension and involvement of the Central Office. Suspension is not just a threat. One of Washington High's objectives under its Effective Schools plan is to reduce the number of suspensions, per 100 students, from 55 to 49 for freshmen, from 40 to 35 for sophomores, and from 24 to 22 for juniors. This is a penalty that is frequently invoked.

In spite of--or perhaps because of--the very structured environment, Washington High School is on the upswing after a difficult period. In the thirties, forties, fifties, and much of the sixties, Washington was the premiere high school in the city and probably in the state. The school served the highly motivated, academically inclined students of a principally Jewish neighborhood. Graduates from that period include former Governor Lee Dreyfus and actor Gene Wilder as well as a multitude of doctors, dentists, lawyers, and businessmen.

By the early seventies, Washington High had changed significantly, in large part due to the redrawing of school attendance boundaries. An increasing black enrollment led to nearly inevitable racial clashes that spilled out of the school grounds and into the surrounding streets and alleys. A series of violent incidents and attendant negative media publicity tarnished the school's image badly. A current student says,

> Washington's biggest problem is the old rumors that still circulate about how bad the school is. The school got its bad reputation from the 'troubles' that occurred back in the 1960s and we have never been able to shake it. People say if you go to Washington, don't show your face in the lunchroom. This really hurts because it's not like that now.

The current principal was assigned to Washington as part of an overall determination to set the school back on the right track. Firm and consistent but low key, he has guided Washington back to a point where a new sense of pride is emerging. Students <u>want</u> to come to Washington again. The Computer Data Processing specialty draws some students from other areas of the city. However, others are choosing the school, not the program, because it has a growing reputation for being safe, orderly, and supportive--not to mention the fact that the basketball team won the state championship in 1985 and 1987! As one student put it:

> My brother went to this school and the teachers straightened him out. I think it is a great school. I came here and fell in love with it.

The computer specialty is needed and there will be a lot of demand for it. But the English faculty is good, too. The science labs are great and the tech lab in the basement is good. There is lots here for the students to do.

A very small number of students at Washington High are eligible for traditional academic recognition awards such as National Honor Society or the school honor roll. Therefore, administrators and the student government make a special point of recognizing other types of personal accomplishments such as increases in grade point average, punctuality, and good attendance. Much of the creative thinking on ways to bolster the self-esteem of the student body is the responsibility of the faculty's "Positive Reinforcement Committee," augmented by the student government's efforts to boost school pride.

## II. The School and the Community

### Parents and the Neighborhood

Washington High School is located in an area of Milwaukee known as Sherman Park, which has a citywide reputation for community activism. Throughout the often trying times of the late sixties and the seventies, the Sherman Park Neighborhood Organization fought major and successful battles to keep the community surrounding Washington racially balanced and stable. A cornerstone of its campaign was maintenance of a reputable and desirable high school that would retain long-term residents and attract new, upwardly mobile inhabitants. To this end, the organization actively campaigned for and helped raise funds to support school enhancement projects such as the relatively new gymnasium and pool, which are considered neighborhood resources.

Despite its excellent standing with the community generally and, as will shortly be described, the business sector, Washington High is not happy with its success rate in involving the adults who should be most intimately concerned with the school's effectiveness--the parents of current students. Ideally, home and school should be working hand in hand to address the generic problems of an urban school: raising attendance rates and academic standards, lowering dropout rates, controlling and diffusing the inevitable conflicts in a multiracial setting populated by volatile adolescents. Instead, the school feels that it is largely confronting these issues alone or even, at times, in direct opposition to the attitudes of families. As the principal stated, "It is a real struggle."

### Advisory Groups

The computer data processing program actually grew out of an inquiry from the private sector. Serendipitously, an executive with the J.C. Penny Company called Washington High School in 1975 to inquire what the school was

doing in the computer area at just about the same time that a new superintendent of schools was promoting an "Options for Learning" initiative that would eventually lead to development of magnet programs in all city high schools.

Following up on the private sector interest in high school graduates trained in computer programming and applications, a math teacher at Washington High spearheaded formation of a five-person advisory group that soon produced the outline for a high school level computer "major." This teacher (now an assistant principal at Washington) became the program's first "implementor."[2] His interest and expertise in computer technology, in combination with strong interpersonal skills, were critical factors in creating a firm foundation on which the specialty area could grow. Largely through his efforts, a highly supportive atmosphere for the program developed--both within the school and in the community.

At least theoretically, all the career specialty programs in Milwaukee have Advisory Committees composed of employers, representatives of higher education, and citizens. The Computer Data Processing career specialty program at Washington High School has a very active, stable, and large (25 members) Advisory Committee considered by many school officials to be the best in the city. Originally composed almost exclusively of representatives of the business community, the committee now includes several representatives from various institutions of higher education as well. Although initially skeptical that high school students could master programming, committee members have been unfailingly supportive of and ultimately amazed at the popularity and success of the program.

The full membership of the computer program's Advisory Committee does not meet frequently. However, its subcommittee structure is extremely active, assisting school people with preparation and presentation of proposals, budgets, and planned program changes. Members willingly provide plenty of information on current and future personnel and skill needs "out there" and leave the school to get on about the business of preparing students to enter that world.

Employers

Washington High School has had a long-term partnership arrangement (since 1978) with a local automotive products firm, the A. O. Smith Company. More recently, the school has also entered into special, ongoing relationships with Northwestern Mutual Life Insurance Company, St. Joseph's Hospital, and Marian Catholic Home, Inc. These businesses serve as sources of advice, support, and some co-op job placements for all of Washington High's programs, including but not restricted to the specialty computer area.

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[2]The unique position of implementor was created by the school district in order to allow lead teachers associated with the career specialty programs the flexibility to perform the various duties required to coordinate a successful operation.

According to Washington's principal, educators have benefitted a great deal from business involvement in the school. In general, he believes, business and education have very different philosophies and approaches to problem solving, a point that he illustrated with the following anecdote:

> Our computer program's Advisory Committee presented a five-year plan to the School Board. We asked for a substantial amount of new money from the district's development fund for the program. The business man who made the presentation ended his talk with a hypothetical question to [the] superintendent about how educators would decide to allocate funds between two programs, one successful and growing and the other shrinking and not doing well. The superintendent answered that many educators would seriously consider giving the money to the weaker program to help it get better--a decision that would be unlikely in the private sector.

However much they may disagree with or are perplexed by the educator's logic, Washington High's business partners have not attempted to interfere in the management of the school or its programs. They <u>have</u> prodded and encouraged the administration and program people to adopt such business strategies as long-range planning and regular, honest evaluation of strengths and shortcomings. And much of what they have advised has made sense. As one administrator put it, "The association with business has changed the way that we operate around here. We don't waste as much time getting things done as we used to. We move faster."

Washington High continues to strengthen its ties with the business community. Negotiations are currently underway to establish an agreement with Wisconsin Bell Telephone and other companies whereby qualified graduates of the computer specialty program will be hired at above minimum wage. In addition, the school and local companies are exploring the possibility of establishing a scholarship fund to be made available to ex-Washington students for further education.

## III. District Structure of Vocational Education

### <u>The Role of Vocational Education</u>

#### <u>District Philosophy of Vocational Education</u>

Development of career specialty magnet programs in Milwaukee has had a profound effect on the philosophy and goals of all secondary education in the city. In many school systems, career education was one more educational fad, promoted by the federal Office of Education in the early 1970s but falling by the wayside when new ideas or priorities came along. That has not been the case in Milwaukee. Career education has become a central theme around which curriculum revisions in both academic and vocational fields have been constructed over a 12-year period.

All fields of study offered in the schools are viewed as having both general and specialized content. At a general level, all students are

expected to be able to read, write, and perform basic mathematical computations. Similarly, they should all have a basic understanding of the roles of agriculture, business, family, and industry--the standard vocational areas--in society. Ideally, this general knowledge should be acquired before the ninth grade; high school then becomes a time for increasing specialization and the refining of general education, whether in a college track academic program or in a vocational area. The way in which academic and vocational courses are combined in the individual student's program defines a career development emphasis. This is as true for the prospective engineer or doctor as it is for the aspiring auto mechanic or food service worker.

Career and vocational education in Milwaukee is based on a set of assumptions that include the following:

- Vocational education curricular fields are for all students.
- Vocational education curricular fields are viewed as disciplines in the same sense as mathematics, science, social studies, etc.
- Educators teaching courses within these curricular fields, whether they are regarded as general education or specialized education, are all vocational educators.
- While occupational preparation can occur in all curricular fields, vocational education curricular fields are unique in that occupational preparation is a major component of their mission.
- Occupational preparation is educational activity directed toward preparing students for a particular occupation or cluster of occupations which may be paid or nonpaid.
- Occupational preparation is directed toward both entry-level jobs and those requiring continuing education.
- Occupational preparation can take a variety of forms. These include in-school instruction, simulations, cooperative education, internships, and other on-the-job experiences.
- Career education is an approach in which the career development skills needed by all persons are infused in all curricular fields.
- Career specialty programs [such as the Computer Data Processing Program] involve all curricular fields, including the vocational education disciplines.[3]

In essence, then, Milwaukee is striving for an across-the-board integration of academic and vocational education--the "infusion" of each one into the other that Philadelphia's High School Academies Program has achieved on a small scale. If Milwaukee can fully implement its stated philosophy citywide, it will have accomplished a massive restructuring of

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[3]These statements are drawn from the "Milwaukee Public Schools' 3-Year Local Long-Range Plan for Vocational Education for 1985-86 through 1987-88."

vocational education. This case study examines how efforts to innovate and revise are playing out in one high school.

The Magnet Programs

Vocational education in Milwaukee has been strongly affected by a 1976 court order to integrate the school system. When a new superintendent was hired in 1975, he brought with him a strong interest in developing educational choices for secondary school students through a plan that he called "Options for Learning." The court order to desegregate the city's schools provided a mandate for change that speeded approval and implementation of a magnet school program involving every high school, but it is likely that at least some specialty schools and programs would have been developed even without the legal impetus. Philosophically, the magnet programs are rooted in a desire to give students and their parents choices in terms of school location, instructional approaches, special subject emphases and/or career specialization programs. One administrator at Washington High characterized the tenure of this superintendent (who has recently moved on) as a time when "there were tremendous opportunities in the school system for people who wanted to do things."

Although some magnet programs have been developed for the elementary and middle school levels (e.g., foreign language immersion schools), the greatest program variety is available in the 15 city high schools. Five of the high schools are called "citywide magnets." These schools--two academic, one business, one arts, and one trade and technical school--select each entering freshman class from among a pool of applicants who may have attended the lower grades in any part of the city. Selection criteria vary among the schools but all must meet established racial balance guidelines. Technically, all students in the district are eligible to apply to these schools. When there are more applicants that spaces, admission decisions are made by random selection. The district relies on the junior high school guidance system to assist students in making realistic choices about which high school to attend.

The remaining 10 Milwaukee high schools are defined as comprehensive, neighborhood schools, offering academic, general, and vocational programs. However, each school also has one or more "career specialty programs," which are also a part of the desegregation mechanism. Like the citywide high schools, the career specialty programs draw students from all parts of the city. Where a program draws more applicants than slots available for a particular racial group, students are chosen randomly. A list of the career specialty programs appears below:

- Law and Protective Services
- Applied Technology
- Marketing
- Environment
- Broadcasting
- Medical Sciences & Health Care
- Food Service
- Agribusiness & Natural Resources
- Computer Data Processing
- Mathematics/Science
- Word Processing
- Energy
- Electronics
- Transportation
- Travel & Tourism
- Recreation/Lifetime Sports
- International Studies

Technically speaking, most career specialty programs are not vocational education. Few state or federal vocational education dollars are now or ever have been used for their support. Some of the programs are distinctly college preparatory, such as the mathematics/science specialty, journalism, and international studies. Others, however, are really occupationally specific vocational education programs. The transportation program, for example, has seven areas of emphasis: (1) truck operations; (2) auto body technology; (3) vehicle diagnosis and repair; (4) diesel technology; (5) transportation marketing education; (6) transportation office; and (7) transportation management. The program thus crosscuts at least three traditional areas of secondary vocational education: trade and technical skills, business education, and marketing education.

Approximately one-third of Milwaukee high school students are enrolled in either a citywide high school or one of the career specialty programs. The remaining two-thirds are required to develop a "career interest program" (or CIP) that gives focus to their elective course choices during their four years in a comprehensive high school.[4] Eighteen career interest strands are outlined in the materials prepared to help students and their families plan a high school program. Nine of the strands are unequivocally "vocational" by any traditional definition of that term. The elective, vocational courses associated with them are offered through the business, home economics, and industrial education departments of the 10 comprehensive schools. Essentially, the career interest program is designed to forestall students' tendencies to "dabble" and encourage them to focus their efforts in what is essentially an occupationally or academically specific program.

Traditional Vocational Education

In addition to its specialty programs and schools, the school district also offers a full range of "traditional" vocational education programs to secondary students. Administered by the Department of Vocational and Special Programs, secondary vocational education is organized into traditional occupational clusters at the district and school levels. The central office staff includes area supervisors in the following occupational clusters: business education, home economics, industrial education, marketing education, and office education.

As is occurring in other localities around the country, in Milwaukee traditional vocational education--the courses and programs that are not

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[4]In the fall of 1986, Milwaukee added nine new guidance counselors citywide for the specific purpose of providing more intensive career planning assistance to disadvantaged students. These counselors administer one or more vocational assessment inventories to disadvantaged ninth graders taking vocational education in the comprehensive high schools. Inventories used include a model developed for use by all Texas schools and the computerized MESA, and Discover systems. An IEEP--Individualized Education for Employment Plan--is developed for each student assessed which in turn ties in with the required Career Interest Program that guides the individual's program planning. The assessment program is funded through the Perkins Act disadvantaged setaside.

offered as specialty programs--is currently being challenged to adjust to changing demographic and educational circumstances. The labor market in the area is changing, with increasing numbers of service jobs and declines in other, more traditional areas such as manufacturing. Declining enrollments districtwide have reduced the level of resources, including particularly teaching staff, available to support vocational programs, and in many schools one or more programs have closed.

In the view of some of the teachers and administrators we interviewed, the specialties have drawn off some of the more talented students who might have enrolled in traditional vocational education in the past. Further, increased graduation requirements have made it difficult for many students to take enough vocational education courses in high school to prepare adequately for good entry-level jobs. To accommodate changes in graduation requirements, the length of class periods has been reduced, and students who used to be in shop for two hours are now there for 47 minutes, which, according to teachers we interviewed, is not really enough for intensive skill training. Implementation of competency requirements has meant that many students--often those who are likely to be attracted to vocational education in order to prepare for jobs immediately after high school--find themselves having to take competency courses in high school in lieu of other electives such as vocational education.

However, as one vocational teacher commented,

> The vocational education programs that are foundering at the secondary level are the traditional ones, and if a school is implementing newer concepts--competency-based instruction, for example--the programs will do all right. If you offer "techy" classes, students will often want vocational education rather than computer classes, because they can get some real-world applications and ideas. Secondary vocational education has to adapt in order to survive.

The district overall is making changes in its traditional programs in order to meet the vocational and career needs of its students. As noted elsewhere in this case study, some of the specialty schools and programs are using vocational education in creative ways to support the specialty. Further, the hiring of a new curriculum specialist for industrial-technical education has resulted in some important districtwide and school-level changes.

To start with, the old name, "industrial arts," and the "shop" stereotype it brings to mind have been abandoned in favor of "industrial-technical education." (According to one vocational teacher, these changes are intended to make technical education more consistent with state and national trends, in the labor market as well as in newer approaches to vocational education.) Specifically, some of the old programs have been reorganized into communications, manufacturing, and power and energy. The new supervisor is working with the high school department chairs on a new five-year plan that incorporates these reorganized programs. Eventually each school will have a specialty, and the programs will be spaced out around the city; three schools will have manufacturing, three communications, and three power and energy. Program location will be arranged to improve access for all the city's students. This configuration will enable

the district to concentrate resources, mainly because there are no longer enough students to support as much vocational education as the district offered in the past.

The structure of the curriculum has been changed to reflect this reorganization. As an example, at Washington High School students who enroll in a communications program (graphic arts, drafting, CAD, etc.) take the following sequence:

| | |
|---|---|
| 9th grade: | exploratory technical education (3 units of 6 weeks each; essentially an Industrial Arts survey) |
| 10th grade: | Communications |
| 11th grade: | Graphic Arts 1 or Drafting 1 |
| 12th grade: | Graphic Arts 2 or Drafting 2 |

Prior to the reorganization, students began the concentration in graphic arts or drafting in tenth grade, which, along with longer class time, meant more time for in-depth, skill-specific training in a particular occupational specialty as well as providing time for co-op in the 12th grade.

On the one hand, the reconfiguration of technical programs means that students cannot enter higher level skill training until 12th grade; thus the new system does not really permit students in high school to learn all the skills they need for job success. On the other hand, the new organization is thought by teachers to have some advantages. First, it enables students to develop an impression of what industry is like now (versus 15 years ago) by exposing them to a number of different types of specialties within an occupational cluster, reflecting the increasing differentiation that has come with more and more sophisticated technology. The intent is that students will obtain basic vocational skills that they can increase in postsecondary vocational education or through on-the-job training if they enter the workforce immediately after high school. Teachers and administrators hope that high school vocational education organized in this fashion will "turn students on" to an occupation and motivate them to continue their training at the postsecondary level, after which they will be ready to go into a good job in their chosen career.

In part to encourage students to pursue vocational training in and beyond high school, the district has in recent years implemented nine articulation agreements with the nearby postsecondary technical college--the Milwaukeee Area Technical College (MATC). Two programs are in air conditioning & refrigeration and in electronics technology. The latter program was developed in response to unfilled labor market demand for trained electronic technicians. General Electric Corporation worked with the district to improve the high school component of the program in order to ensure instructional quality that would enable high school students to obtain advanced standing in the first-year electronics courses at MATC.

Governance

Policymaking for the Milwaukee Public Schools lies with an elected nine-member Board of School Directors who are informed and advised by a Superintendent of Schools, a Deputy Superintendent, three Assistant Superintendents, and a substantial central administrative infrastructure. Top district administrative positions related to vocational education include a Local Vocational Education Coordinator and a Director of Vocational and Special Programs. In addition, program specialists are employed for each specific vocational area (e. g., business, technical education) as well as for career education, exceptional (special) education, and education of the educationally and economically disadvantaged.

Supports and Constraints

According to some educators in Milwaukee, vocational education in the city's schools has been adversely affected by the magnet schools program. This is not because of direct competition for funding, since the magnets were initially funded with federal magnet schools money. However, the career specialties have drawn students away from regular vocational education programs; fewer enrollments, of course, mean less basic state support for vocational education. As one technical education supervisor pointed out, "You need to maintain an industrial arts laboratory the same whether it's used for two sections of students or for ten." When the dollars earned by enrollments can no longer sustain basic maintenance and replacement of equipment, then a program goes into decline.

On the positive side, the career specialties have brought vastly upgraded equipment and facilities for vocational education to selected schools. Students who opt to attend the magnet programs receive state-of-the-art secondary school vocational training. Some regular vocational programs in individual schools have adapted their curricula to take better advantage of potential links with a career specialty program. Thus, at the citywide High School for the Arts, technical education focuses on training to support the arts (e.g., set building, stage lighting, and glass blowing.) At the citywide business high school, industrial arts has been resurrected as an "entrepreneurial lab," focusing on advertising and other skills related to the commercial emphasis of the school.

The computer data processing specialty at Washington High School has always had a strong consortial relationship with the school's business education program. Both programs are housed in close proximity to each other on the school's fourth floor. Currently, the Industrial-Technical Education Department is seeking strategies to strengthen its logical ties to the school's wealth of computer equipment and expertise. More will be said about interdepartmental relationships at Washington High in a later section of the case study.

Obviously arguments both pro and con about the impact of the career specialty program on vocational education in Milwaukee can be and are made. The state of Wisconsin evaluates each school district's vocational education

programs every five years. In the most recent evaluation, conducted in October 1986, the visiting team of educators found that:

> There is. . .an emerging problem as deliberate efforts are made to disassociate specialty programs from vocational education. The creation of such a distinction is neither logical nor in the long-range interest of students or community.

To counter this tendency, the evaluators recommended that all occupational education programs be managed and operated under a consistent set of guidelines and that a new central office position for planning, implementation, evaluation, and facilitation of stronger relationships between academic, career specialties, and comprehensive vocational programs be created.

This criticism did not surprise school officials. Milwaukee is an anomaly among school districts in Wisconsin, and there is a long-standing debate between MPS and the State Department of Public Instruction on appropriate educational strategies for the state's only really urban district. Thus, when the state suggests that the magnet programs may be "creaming" the best students and leaving traditional vocational education in the dust, Milwaukee school administrators tend to shrug and carry on with what they believe works. They have already heard the jokes about "The State of Milwaukee vs. The State of Wisconsin" many times.

Since the state will not accept most of the career specialty programs as legitimate vocational education (transportation and word processing are the notable exceptions to this statement), the district has pursued their development and institutionalization under other auspices--principally federal magnet school funds and local budget allocations. According to the central office vocational and career education staff, Perkins Act money has been of little help to either the specialty or the traditional programs. Vocational educators are particularly concerned about the loss of federal support for cooperative education under the new law. The district had used funding provided by the old Vocational Education Act to help defray the costs of (1) summer extensions to co-op teachers' contracts and (2) the release time during the school year when co-op coordinators must supervise students in their job placements. Milwaukee believes that this is an entirely appropriate area for federal dollars to supplement local support for vocational education.

## Relationship to the Academic Program

Wisconsin approved new statewide high school graduation requirements in 1985. Anticipating this change, Milwaukee had already raised the number of units of credit required for high school graduation from 18 to 21 (the state recommends but does not require 22) and the number of specified units from eight to 13 beginning with the class of 1989 (currently eleventh graders). Requirements for the class of 1988 and for all other students are presented below:

| Class of 1988 | | All subsequent students | |
|---|---|---|---|
| English | 3.0 units | English | 4.0 units |
| Math | 2.0 units | Math | 2.0 units |
| Science | 2.0 units | Science | 2.0 units |
| U.S. History | 1.0 unit | U.S. History | 1.0 unit |
| Social Studies | 1.0 unit | Citizenship or politics/ economics | 1.0 unit |
| Phys. Ed./Health | 2.0 units | | |
| 1 additional academic unit | 1.0 unit | World history or geography | 1.0 unit |
| Electives | 9.0 units | Phys.Ed./Health | 2.0 units |
| | | Electives | 8.0 units |
| Total | 21.0 units | Total | 21.0 units |

Career specialty programs or career interest areas identified by students generally specify from four to six of the eight units allowed as electives. For example, students in the career interest program in construction planning and design must take three units of drafting, one unit of metals technology, and two units of woods technology.

In addition to required courses, all students in Milwaukee must pass competency tests in reading, writing, language arts, and mathematics in order to graduate. For a school like Washington High with a large proportion of educationally disadvantaged students, these tests are a major hurdle. Citywide, approximately 50 to 60 percent of students meet their reading and math competencies on the first try at the end of eighth grade. At Washington, about one-third of the seniors still have one or more tests to pass before June if they are to graduate with their entering class. The school offers "competency" classes in English, reading, and math to juniors and seniors in need of remedial work to pass the tests; these courses appear to count toward total English and math course credit requirements for graduation.

As in other districts across the country, it is the perception of school-level vocational educators in Milwaukee that increased academic requirements have hurt vocational enrollments. Certainly at a school like Washington, remedial classes geared toward the competency tests take their toll. A teacher commented that "Kids who fail their competency exams get really stacked up with courses in their junior and senior years." However, teachers also believe that students are taking the competency tests more seriously and are really trying to pass them earlier.

## Unique Features

The Computer Data Processing Career Specialty Program is Washington High School's most unique program and the reason that the school was singled out for this study. There are, however, several other programs in operation at the school that are of interest, particularly in the context of educating disadvantaged students.

Project CARE

Project CARE is a school effectiveness program that operates in each of Milwaukee's 10 comprehensive high schools. Using its own baseline statistics on attendance, test scores, and failure rates, each school identifies improvement objectives. To assist the effort, the Board of Education provides each school with $150,000. Washington High's goals include lowering the proportion of tenth graders scoring in the low category on a standardized reading test from 41 percent to 34 percent, reducing the percentage of courses failed by tenth graders from 31 percent to 29 percent, and raising the tenth grade attendance rate from 80 to 82 percent. (Similar objectives are set for ninth and eleventh graders.)

Chapter 1

Unlike many school districts with large numbers of disadvantaged students, Milwaukee targets a significant segment of its federal Chapter 1 money at the secondary level. At Washington High School, 55.7 percent of the students qualify for free lunch and a large number of these are low achieving as well. As part of Project CARE, some Chapter 1 funds are being used to support a "family plan" that clusters at-risk students into groups of 120 where, it is hoped, they will find a sense of purpose, identity, and affiliation with the school that is often lost in a student body of nearly 1,700. Four family groups have been formed, each with a teacher-sponsor. Basic skill instruction in reading and math takes place within the "family" context.

Overall, Washington High School has 9.2 full-time-equivalent Chapter 1 staff. Fully one-third (a total of 550) of the students at the school are enrolled in a Chapter 1 writing lab that is conducted in conjunction with classes offered to help students meet their competency requirements.

The structure of the Chapter 1 writing lab reflects the schoolwide infusion of computer technology that has been one result of the school's computer specialty program. Originally started as a pilot to explore ways to help students improve their writing skills, the program has now been fully implemented. The model uses a shared instruction approach such that while the teacher-student ratio in the classroom is one to 30, in the lab it is 1 to 15, which permits extensive one-to-one interaction between students and teachers.

The instructional design is as follows. Students spend time in their competency class writing a draft of an expository essay. Then at intervals they cycle through the lab for three one-hour periods. Using Bank Street Writer on Apple microcomputers, students key in their essay and then spend their lab time revising their work. The two teachers[5] in the lab sit with individual students to help them with revisions, and at the end of the three days students have a theme that is graded according to competency test standards.

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[5]Teachers assigned to the lab are those thought to be most effective at working with students on an individualized basis.

According to the chairperson of Washington's English Department, this approach has a number of advantages for students. The one-to-one attention that forms the program's basis is an excellent vehicle for teaching the skills required to develop and refine ideas. Use of a computer for composition and revision keeps students engaged in what they are doing (and is much better than the computerized drill and practice that many remedial programs use). Thus the system permits students to move sentences and paragraphs around in a way that enables them to literally see the process of developing ideas that is so critical to effective written communication. This method of learning is far superior to the copying and recopying that characterize writing and revision in the old, precomputer days. Finally, students are learning word processing skills that may be useful to them in the future in other ways.

An important additional benefit is the self-esteem building that occurs as teachers work closely with individual students and offer compliments as students work to develop their writing skills. Students build confidence in themselves as thinkers and students, and the confidence in turn leads to increased interest in their work and willingness to explore learning--to take risks rather than retreating into an "I don't want to because I don't think I can" pose.

Perhaps the clearest indication of the efficacy of this approach to Chapter 1 services was our observation of the students: they were fully engaged in their work in the lab. Students waiting for assistance from one of the teachers continued working rather than talking with others or sitting idly. Equally impressive was the fact that the teacher we interviewed, while she was extremely responsive and courteous during the discussion, was clearly eager to get back to her students in order to continue helping them with their work.

Pre-Co-op

As part of an ongoing strategy of providing special assistance to facilitate the educational success of disadvantaged students, this year the district has implemented a new program in four high schools whose purpose is to help "highly at-risk" students prepare for regular co-op. (This program is supported under Perkins II-A funds for disadvantaged students.) At each school, 15 students have been selected by school counselors for participation. Eventually, all participants will be juniors and then will enter regular co-op as seniors, although in this first year, some seniors have been admitted. Participating students take a somewhat reduced academic load, attending school for one-half day and working at a paid job the remainder of each day.

At each school, one teacher has been selected to operate the program. Teachers have the students for one class period daily, during which they work on employability skills as well as receiving individualized assistance in reading, math, and other areas (to facilitate success in their regular courses). They also take two regular classes. In addition to preparing students to enter co-op, the program aims to reduce dropout rates and improve attendance among participants, improve student grade point averages, help them to pass their competencies, and eventually ensure that they graduate from high school and are able to obtain jobs or enter further

training. Pre-co-op teachers work with their students' other teachers as well as parents and employers to keep track of student progress, identify problems that need to be resolved, and try to turn the students around regarding their attitudes toward and involvement with school.

Most of the students enrolled in pre-co-op at Washington are "slow learners,"[6] although one is an A student who is disaffected. Most have problems with reading and writing, and only four of the 15 students have passed all their competencies. In the year prior to entering pre-co-op one student, typical of the population targeted by the program, had a grade point average of .299 (on a four-point scale), had had 54 home room absences, and had passed only one of the four competencies. He is working at a small manufacturing firm doing clean-up, where he is receiving good evaluations from his employer. He is also attending school regularly.

Pre-co-op at Washington High School is run by a home economics teacher who has been at the school for three years. She reported that she had attended a summer session at the University of Wisconsin at Whitewater, which had enabled her to help develop the program. While she was interested in it, she did not particularly want to give up her regular teaching assignment to take it on, but did so at the request of central office. Now, however, she has become committed to the program. She has become aware of how much attention these students need, and she believes that this approach will work. When asked whether she will continue with it next year, she replied, "Absolutely."

The pre-co-op teacher works closely with students' parents, who she says are generally very interested and involved. (She has stressed with parents as well as with her students that the program is very expensive, and requires full commitment of students and their families if they are to benefit from their involvement.) She spends considerable time arranging jobs and monitoring her students' progress at work, including interacting personally and by telephone with employers. Students are working in a bakery, in interior construction, in fast food, with a small housecleaning company, and in local businesses doing janitorial or warehousing work. She noted that she has had to find more than one job for several students, but hopes that their current placements will "take." Further, she expects that 14 of her 15 current students will eventually graduate from high school.

Parent-Infant Program

According to local educators, Milwaukee has the somewhat dubious distinction of owning the highest teenage pregnancy rate in the nation. The school district sponsors one alternative program for teenaged parents and two daycare programs in comprehensive high schools, including one at Washington. The program at Washington is supervised by a home economics teacher, but the actual childcare providers are hired through a community service agency. A maximum of 20 infants and toddlers can be accommodated, and there is a significant waiting list. Participating mothers are required to enroll in a parenting class.

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[6]The program is not, however, open to special education students.

On the day that we visited the nurseries, a total of seven babies were present. An epidemic of diarrhea accounted for some absences. However, as the program supervisor pointed out, achieving regular attendance is difficult. Even with door-to-door transportation provided, the young mothers must be organized for the day with diapers, bottles, and the other paraphernalia associated with traipsing babies around--not to mention their own books and homework assignments. For all but the most highly motivated, it is a daunting regimen.

Language Minority Program

Milwaukee has a small but increasing group of Asian immigrants. In fall 1987, this group represented about 2.4 percent of the city's population (up from 2.2 percent the previous year). High school Asian students who need language-related services to support their educational programs are sent to Washington. Among the courses these students take at the school is a bilingual vocational class in manufacturing. Taught by the chairman of the Industrial-Technical Education Department, the course enrolls 15 students and provides an interpreter to assist the students in understanding the material covered. The teacher commented that the course is a pleasure to teach: the students are very bright, work very hard, and for the most part are doing very well in the course.

## IV. The Programs

The Computer Data Processing Career Specialty

The first thing to understand about the computer specialty program at Washington High School, we are told, is that it is not a department. That is also one of its main strengths and a major reason that it has had a significant impact on the whole school. The program developed through a consortium approach involving the math, business, and science departments.

A very strong and successful link to business education is made through the accounting classes. Business teachers are delighted to have the computer specialty students in their classes because "they do their assignments and are generally a good influence." A somewhat more tenuous connection has been formed between physics/electronics and the computer program. A third initiative--development of a robotics "spin-off" from the metals and foundry program in the industrial-technical education department --has not flourished but has also not been abandoned. Similarly, creating a link to the marketing/distributive education program through a school store featuring computer-related merchandise has proven difficult; teachers are planning one last try to get this project going this year.

As we noted earlier, specialty programs in Milwaukee are headed by teachers who are given the special title of "implementor." The computer program has had two implementors; both have been math teachers. Responsibilities of the position include recruiting students, managing the curriculum, scheduling and coordination, fund raising, providing student services, general troubleshooting, and acting as a resource for other schools in the system. Most of the teachers in the program are certified

mathematics instructors who signed on at the outset. They had a personal interest in computers, took a limited amount of training, and were able to add computer certification to their credential without difficulty in the years before the state created a separate certificate for computer instructors.

Participants

The Computer Data Processing specialty program at Washington High School officially has 575 students enrolled--approximately one-third of the school's total enrollment.[7] In fact, about half of first-year students in the program must spend the year "getting up to speed," particularly in math, since full participation in the program requires a student to have completed algebra or be concurrently enrolled. A computer literacy class, which is actually outside the recommended course sequences, allows the students to feel that they are participating in the computer specialty during this interim period. (The literacy course is required for all exceptional education students enrolled in the specialty.) On average, about half of the provisional group will not be able to meet the algebra requirement even after a year of math review. This application of a prerequisite to program admission is atypical of the career specialty programs in general. Students must maintain a "C" average in their computer classes to remain in the program; teacher recommendations are also strongly weighed in making decisions about continued participation.

Theoretically, the computer specialty program is open to all students in the city. About 50 percent of the students currently enrolled come from outside the immediate neighborhood of Washington High. This proportion includes a relatively small number of students from suburban schools who are eligible to attend Milwaukee schools under a state desegregation initiative (Chapter 220) to encourage interdistrict exchanges of educational opportunities. Because Washington High is a majority black institution, the computer program seeks to attract nonblack students whose presence will help the school meet desegregation guidelines. Of the 220 slots allocated for freshmen each year, 110 are for blacks and 110 for other racial groups. On the average, the program receives over 200 applications from black students and has to turn some away.

Throughout the city, exceptional education students are eligible for career specialty programs generally, subject to agreement between exceptional education staff and the program that the placement is appropriate. Washington High's exceptional education teachers have been especially aggressive about getting their students involved in the computer specialty. Learning disabled and emotionally disturbed students are mainstreamed into regular computer classes, with various kinds of extra support provided as needed. Deaf students are also participating in enter the computer specialty program.

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[7]Students may enroll in the computer specialty for one, two, three, or four years on a full-time or part-time basis.

The Computer Lab

The Computer Data Processing program laboratory is located on the fourth floor of Washington High School. Completed in 1982, it is a climate-controlled, highly secured facility, surrounded on three sides by the administrative offices for the computer program, business education classrooms, and the office education duplicating center.

The laboratory contains a variety of computer hardware, ranging from a small mainframe (the VAX) to a slew of Apple IIs to a brand new, state-of-the art IBM System 36 that links multiple IBM personal computers. There are also a few WANG dedicated word processors for the use of office education students. It is a quiet room, divided into sectors through the placement of the various types of terminals. Although some group instruction takes place in the lab, it is mainly a place where students work individually on projects or tasks assigned in classrooms. While in the lab, students are very task-oriented; on-line time is a valuable commodity. There is subdued talk as they consult each other on problems or procedures but no overt "goofing off." One boy is visibly distressed when a teacher puts his program on hold to demonstrate a feature of the terminal to visitors.

The lab is open from 7:30 in the morning until 5:30 in the evening. One of three paraprofessional lab assistants is present at all times. These individuals are not necessarily trained in the use of computers. Rather, they are there to sign hall passes, monitor behavior, and contact the appropriate people if a problem develops.

Needless to say, maintaining and supporting this laboratory are expensive propositions. The initial equipment was purchased with federal money in the early years of the program, but the rapid pace of advancement in computer technology over the past decade has challenged the computer specialty program's capacity to keep up. And keep up it must; its mission is to give students a competitive edge in a field that is probably changing more rapidly than any other.

With the recent loss of over $100,000 in federal funds annually, a great deal of time and energy is being expended on developing new sources of major capital for the program. The newly purchased IBM System 36 cost $41,000, raised over a three-year period. The VAX is running at full capacity and should be replaced in the near future. Current plans are to solicit external funding from local businesses to be used in combination with whatever can be extracted from the district. The program's Advisory Committee has helped the program implementor develop "funding documents" that can be used to make the case for new equipment with internal (school district) and external audiences. Everyone involved believes that it will be easier to convince the business world of the wisdom of capital investment than to move the school district's budget committee. As one sympathetic administrator pointed out, "It's hard to get rid of the 'lathe mentality' where the expectation is that you buy a piece of equipment and it's good for 20 years."

The Curriculum

The Computer Data Processing program has four strands. Approximately one-third of the students enrolled are in the programming/systems strand, which is a college preparatory curriculum, culminating in an Advanced Placement course in the Pascal programming language. The recommended course sequence for this group includes:

Introduction to Computer Data Processing (9th grade)

Intermediate Programming or Computer Applications 1 (10th grade)

Computer Applications 1 or 2 (11th grade)

Advanced Placement Computer Science (12th grade)

Students completing these courses will have been introduced to three computer languages: BASIC, COBOL, and PASCAL. About 15 students take the AP course annually and about half of these will score well on the AP examination yielding college credit. Students who follow the college prep strand, in combination with their other graduation requirements, can be expected to attend a four-year college or university.

In addition to the college prep sequence, the computer specialty program offers a computer programming/small business concentration, a computer technology concentration, and a recommended set of courses for students who do not intend to pursue their education after high school. The computer technology sequence was designed to combine the study of computers and electronics. Of the four strands, this one has been the least popular. Theoretically, the technology sequence should appeal to students with an interest in the "inside" of a computer--how it is constructed, how it is maintained, how it can be adapted and modified. However, in order to obtain an entry-level position in computer technology, high school graduates would need to take some postsecondary training at a two-year institution. This may be one reason that the strand has not caught on. College-bound students opt for the academic sequence and lower achieving students are uninterested in a career path that has no payoff without further education and training.

The third strand--Computer Programming/Small Business--was introduced three years ago and has been an immediate success. It has always been somewhat of a problem for the program to define appropriate computer career paths for nonacademically inclined students, particularly since data entry positions have virtually dried up in the Milwaukee area. However, the use of computers in small businesses is a growth field and the courses developed make sense to students who, even if they plan to attend college, want and need directly marketable skills. The following courses are recommended for students in the small business strand:

Introduction to Computer Data Processing (9th grade)

Topics in Intermediate Programming or
Small Business Computer 1 (10th grade)

Computer Applications in Business & Industry 1 or

Small Business Computers 2 (11th grade)

Computer Applications in Business & Industry 2 or
Other computer elective (12th grade)

All students in the strand learn the BASIC language, and those who choose the Computer Applications course also learn COBOL. The popular "Small Business Computers 1 and 2" classes focus on software packages rather than programming and provide experience on IBM personal computers and the System 36. Students are strongly recommended to concurrently take the Business Department's accounting course in order to gain a better understanding of how small businesses routinely use spreadsheets and accounting programs to manage their affairs. Teachers encourage students taking this sequence to set their sights on further training at a two-year college or technical school.

The fourth strand is called "Computer Paraprofessional." The goal of the sequence is to prepare students for direct employment. As with the other strands, students begin with Introduction to Computer Data Processing. They may then take Small Business Computers 1 and 2 or branch out into related marketing or business education courses, including work study placements in offices using microcomputers.

A limited number of students are selected to participate in field experiences at two Milwaukee businesses. Each semester, seven seniors spend a total of 12 hours at Northwestern Mutual Life Insurance Company learning about employment possibilities and viewing first hand the job responsibilities of individuals in the computer systems and operations divisions. A similar six-hour experience is offered to all Computer Technology 2 enrollees by Digital Equipment Corporation. Participants visit with field service employees both in the office and on call.

While relatively few students are currently placed in paying jobs, many gain real, practical experience in the use of computers through in-house projects undertaken for the school and the community. The design and implementation of the new lunchroom system described earlier is one example. Students have also tabulated ballots and surveys for various community groups, designed payroll and book distribution programs for schools, and developed computer-assisted instructional units for use by elementary school teachers.

One of the future goals of the computer specialty program is to develop a more broadly based co-op program for seniors. This year, the program was able to place 12 of its top students in paying jobs. Both the school and the Advisory Committee are eager for this number to grow. However, as we have pointed out elsewhere in this case study, cooperative programs cost money. Use of Perkins money for the venture has already been disallowed, which means that the program will need to turn to the business community for support of co-op as well as updating equipment. Several educators at Washington High commented that necessity was pushing the school into an ever stronger relationship with the private sector and severing its dependence on the district's central administration for approval. In their opinion, this trend is likely to have lasting and fundamental ramifications for the

structure of schooling, although they are not prepared to predict what the long-range outcomes might be.

## Traditional Vocational Programs

In addition to the career specialty program, Washington High School offers vocational education courses in home economics, business and office occupations, marketing, and industrial-technical education. The school offers co-op in each of these occupational clusters. Students take vocational courses as electives. There are self-contained pre-HERO (home economics related occupations) classes for special education students, as well as one self-contained industrial arts survey for special education students who are ninth graders. All other special education students taking vocational education are mainstreamed in the shop courses, with special education teachers working with the shop instructors to adapt the learning environment to the needs of the students.

As elsewhere in the country, at Washington High School traditional vocational education is having to adjust to change. The chairperson of the English department, who teaches both honors/advanced placement English and Chapter 1 writing, believes that the displacement of vocational education is doing a disservice to many students. Academic teachers tell students they must go to school and to college in order to get a good job and "be successful and important." In her opinion, society has seriously demoted blue collar jobs--"we need to let students know these jobs are okay to do, so they won't just get caught up in a pattern of academic failure and frustration." She believes that the stigma society has imposed on things like plumbing, welding, and construction has led young people to frown on vocational education and guidance counselors to "dump on it." The difficulty is that students who cannot go on to college really have no place else to go.

### Home Economics

The Home Economics Department, according to its chairperson, is in a survival struggle, having declined from a seven-person department in the past to a low of two teachers two years ago. There are now four teachers in the department, perhaps in part because of parenting class requirements for students with babies in the parent-infant center and the pre-co-op program that is operated by a home economics teacher. Additionally, HERO, which unlike the other co-op programs enrolls both juniors and seniors, is apparently popular with students.

Offerings in the Home Economics Department include a first-level survey, Clothing and Textiles, Food and Nutrition, Child Development, Family Living, the HERO class and on-the-job sequences, and the course for students with children in the parent-infant center, which includes one semester of parent education and a second semester of career decisionmaking. As noted earlier, there is also a class for special education students, and pre-co-op is offered under the de partment's sponsorship. While teachers in the department recognize the declining popularity of home economics among high school students, they believe that much of what they offer--instruction in nutrition, child development, and family living, for example--has great

importance for students at Washington in that these courses provide information on functioning in the adult world that is not directly covered elsewhere in the school and may not be available in their home environments.[8]

Business Education

Business education, office education, and marketing education form a single department at Washington High School. A total of 17 courses are offered, including on-the-job-training in the office and marketing areas. Business classes include Recordkeeping, Accounting 1 and 2, and Business Law. Career Typing or Typing 1 eventually enroll about 70 percent of the total student body--down from 100 percent several years ago when knowledge of the keyboard was a graduation requirement. The accounting classes enroll a large number students from the computer specialty program's small business strand.

The computer laboratory also serves as a spectacular Business Education Resource Center and Office of the Future facility. Developed in close cooperation with Northwestern Mutual Life Insurance Company, the equipment installed simulates the actual office machines used by this large local employer. A Royfax duplicator and a Kodak Extraprint 180 that collates, staples, reduces, and runs back-to-back copies reproduced one-and-three quarter million pages in one recent year. (All copywork for the school is done here, on order, by students.) Other machinery used by office education students includes IBM selectrics, Apple and IBM microcomputers, and four WANG 250 data entry/word processing stations.

The chairperson of the Business Department characterized the students who enroll in office education as "average C+ kids." Overall, enrollments in the department are declining because of academic requirements and the competency tests. The typical office education student does not go on to postsecondary education. Accounting courses and marketing are successful in attracting boys, but females dominate in most of the department's courses.

Marketing 1 enrolls about 60 students, dropping to 25 in Marketing 2. Participation in the senior year marketing cooperative education class is dependent on previous classroom performance, which acts as an incentive, particularly to the juniors in Marketing 2. Many who do earn placements retain their retail jobs while attending postsecondary institutions.

Industrial-Technical Education

As noted in an earlier section, the shops have recently been reorganized, a move that has been motivated by the need to adjust to increased graduation requirements and declining enrollments as well as by a districtwide initiative to revamp industrial-technical education in order to bring it more into line with national and state pedagogic and labor market trends. These changes are tantamount to a change in mission--from an

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[8]In this context, it is interesting to note that many of the teachers and administrators we interviewed at Washington commented on the very difficult personal problems that many of their students routinely experience.

emphasis on skill training to a focus on more broadly based career exploration--for the traditional shop classes.[9]

At the same time, the shop teachers are working to make industrial-technical education more attractive to the students. In part a reflection of the schoolwide infusion of computers, the department has recently opened a new Technology Resource Lab, in which applications of computer technology are emphasized. The lab includes robotics, fibre optics, lasers, CAD, voice recognition units, and the like. It is sufficiently attractive even to the fourth-floor computer specialty students to bring them down to the basement to look at how their academic courses can be applied in a real-world setting. Further, the department holds tours for other schools, particularly elementary schools, to enable students around the city to become acquainted with the new high tech.

Another interesting indication of the commitment of the shops to keeping up is a numerically controlled, computerized milling center. Purchased at a cost of $22,000, the center is used for instruction of students in manufacturing classes along with more traditional machining tools and equipment. The teacher, who is also department chair, commented that he had attended training when his department obtained the center and also ". . . spent a lot of nights learning how to program it." Asked how the students were doing, he commented that they can use the equipment with assistance, but most of them do not really understand how to program it. Nevertheless, use of the equipment keeps them engaged and interested, and to some extent serves as a vehicle for students to increase their math skills.

Classroom Components

Our classroom visits focused on the computer specialty program. Computer programming instruction takes place in standard classrooms with desks, blackboards, and no computers. In an early morning Introduction to Computer Data Processing class, about 20 students crowd a small room. Visitors have a hard time finding a seat. There are three teachers in the room. The young woman leading the lesson demonstrates the concept of a "loop" in a computer program. Students have a worksheet that is reproduced on the blackboard. The instructor (a student teacher, it turns out) competently walks the class through the exercise--questioning, checking for comprehension of the principles involved. The other two teachers circulate, looking over shoulders, making sure all the students are catching on. It is certainly a favorable student-teacher ratio. With the exercise completed and a homework assignment described, students begin to gather their belongings and drift across the hall to work on individual projects in the computer lab. Some remain in the classroom to talk with a teacher.

We learn later that this class contains several learning disabled students and is essentially team taught by a math teacher and an exceptional

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[9]Students who want occupationally specific training in industrial-technical education can attend Milwaukee Technical High School or one of the vocational career specialty programs, such as the transportation specialty at Pulaski High School.

education teacher. Having two teachers in the classroom (three for a few weeks with the student teacher) ensures the extra time and support that help the special students to succeed in their first computer course. Mainstreaming is complete in this class. We, as observers, were unable to tell which students had handicaps and which did not. The exceptional education teacher did seem to take particular care that three or four students had written down the homework assignment.

Another introductory computer class is taught by the specialty program's implementor. A math teacher by training ("Geometry is my first love."), she could be released fully from teaching but insists on being assigned one class per day to keep her hand in.[10] Sixteen students are present as the bell rings; eight are white, six are black, and two are Asian. There are nine boys and seven girls. One girl is deaf and has an interpreter sitting with her, signing the teacher's comments, questions, and lecture. There is obviously a large age range in the class, indicating that some students do not enter the specialty program until quite late in their high school careers. One particularly engaging boy looks like a sixth grader. He is actually 13 and a gifted student who has been accelerated into high school courses.

The first task of the morning involves review of the homework assignment from the previous night. The teacher is meticulous about determining who has done the worksheet (both sides). What counts is not whether you got all the answers correct but whether you made an attempt. This strategy acknowledges a basic premise of the effective schools literature regarding expectations. As a teacher, you do not have the right to assign homework unless you expect it to be done and demonstrate that the expectations count. Most of the students in this class had done the assignment, although some did not notice the back side of the sheet. Four or five students, including the deaf girl, go to the board to put up their solutions to the problems.

The pace of the class (and the students' attention) picks up as new material is introduced. The lesson is quite mathematical (random numbers and integer functions) and the teacher is in her element. "Isn't this fun?" she says. And, in fact, her enthusiasm is contagious. The students ask questions that show they are thinking and engaged. There is clearly a wide range of abilities in the class. Three or four students would answer every question if allowed to. However, as good teachers do, this one calls on all the students, not to embarrass the nonvolunteers but to check that everyone is catching on.

An interesting pattern of numbers is noted by one of the students. The teacher is delighted. "Isn't that spay-shal?" she quips, imitating the church lady on Saturday Night Live. The kids love it. As the bell rings, she asks a boy to stop by her desk on the way out. "Are you getting it?" she asks. He says he will come by after school, if that's all right. Of course it is. The teacher explains that the boy is learning disabled and she is keeping special tabs on his progress.

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[10]Implementors are automatically released half time. Individual principals may arrange additional release time if a program's size or level of activity warrants it.

Toward the end of the class, the teacher reminded students that she would not see them the next day because they would be having "testing." There was immediate reaction, even from the two or three students who appeared to be half asleep. "What test?" "It's not time for the test yet." "They didn't tell us. That's not fair." Their immediate (incorrect) thought was that the math competency test was being sprung on them and they were in a panic. The competencies are obviously a major source of anxiety for these students and not something that they take lightly. The teacher reassured them that this was achievement testing and had nothing to do with graduation requirements.

Work Experience

Washington High School has made an important commitment to cooperative education for students enrolled in the traditional vocational education programs, including home economics related occupations (HERO), industrial-technical education (called industrial cooperative education, or ICE), marketing, and office education. Each of the four co-op programs at Washington is staffed by a co-op coordinator. The coordinators work under an extended contract, which enables them to begin work a month before the opening of the regular school year and provides coordination time (for visiting students' work sites and developing jobs for co-op participants) during the year at a rate of one-half hour per student per week. During the summer the coordinators do home visits with parents of each entering student to discuss the program's requirements.

As with most high school co-op programs, students work half a day and also attend a co-op class, where they learn job-related skills, such as resume development, job interviewing skills, appropriate job behaviors (timeliness, how to get along with coworkers and supervisors), and personal planning and management. Students in HERO, ICE, and Office Education earn three credits, and those in Marketing earn four.

Except for HERO, which admits juniors, students enrolled in co-op must be seniors. Prerequisites vary: Office Education students must have completed a typing course, and students in ICE are required to have completed one shop course prior to entry and be enrolled in another in conjunction with their co-op. (Welding students must meet higher requirements: a total of two courses prior to entry, and their co-op jobs are essentially on-the-job training.) Marketing students are required to have completed Marketing I prior to co-op. (Many of these students already have a job, and co-op is a strategy to keep them in school.) Grade point averages of students in co-op range from 1.2 to 3.8, which is a decline from the 1970s, when students were required to have a 2.5 average.

About one-quarter to one-third of Washington's seniors are involved in co-op; individual program enrollments are as follows:

| Program | Enrollment |
|---|---|
| HERO II | 24 |
| ICE | 11 |
| Marketing | 25 |
| Office Education | 20 |

Several coordinators commented that there are more co-op slots available than there are students to fill them. One reason is that many of the students who are likely to elect co-op (primarily the noncollege bound) have not completed their competencies and thus may not have time in their schedules for the program. (For example, in HERO about 40 percent of the participants have yet to complete their competencies.) Another issue, according to the ICE coordinator, is that considerable attention must be paid to recruiting students into the program. He has found that "running a good co-op program" requires careful screening to ensure that students will be serious and reliable; otherwise, problems are likely to arise on the job that have implications not only for that student but for an employer's willingness to take students in the future.

HERO jobs are in food service, ranging from fast food to family restaurants and catering companies. Because of increasing demand in this field, jobs are relatively easy to find and employers are willing to accommodate students' school schedules. Further, co-op often leads to offers of permanent employment. However, according to the vocational guidance counselor, the income from such jobs is seldom enough for a person to be self-supporting following graduation.

Marketing students work in a variety of retail settings (department stores, fast food, and the like), and Office Education students obtain typing, filing, and other office jobs in local businesses. According to the ICE coordinator, technical jobs are a little more difficult to develop than those in other areas, in part because of the need to divide job slots across the shops (e.g., welding, printing). At the same time, such jobs are more likely to pay more than minimum wage (many students are starting at $3.85 per hour) than those in other fields. Additionally, these students are sometimes able to enter good jobs in these fields after graduation.

Generally, however, the objective (and utility) of co-op is really to develop employability skills (job-seeking skills, appropriate work behaviors, and the like) rather than to train students for a specific career. As one coordinator commented, "For some students, co-op is their only chance to find a spot to be." Co-op helps students because they often lack self-esteem and the maturity to get and hold a job; co-op teaches them a way to go about it. In this connection, the ICE coordinator tells employers than he cares less about student skill levels than their attendance, responsiveness, and seriousness. They need to learn communication and life survival skills, such as budgeting and planning, and co-op is an excellent opportunity for them to pick up these skills without really knowing they are "learning" in a formal school sense.

This view of co-op is shared by the other coordinators as well. They believe that for many of their students, co-op is the first time they have

succeeded in life, and consequently they begin to see a relationship between work and school, between performance and having money. Often their school work improves both while they are in co-op and in the year before they enter the program, when they are trying to complete enough school work to make time in their schedules for co-op. Co-op class supports this process in that students are required to develop resumes, do training plans, and work on aspects of human relations that will help them as they leave school and enter adulthood.

Extracurricular Components

Vocational clubs do not appear to be an important component of the traditional vocational education offered at Washington High School. One of the shop teachers explained why. While the school does have a chapter of Vocational-Industrial Clubs of America (VICA), participation in VICA is expensive, and most of the students enrolled in the shops cannot afford membership. He commented that he does have his students doing a lot of the same activities, but without the cost that would accompany formal membership in a club chapter.

Integration with the Academic Program

A recent evaluation of vocational education in Milwaukee particularly noted Washington High School's industrial-technical education program for its success at upgrading traditional industrial arts to technology education, and suggested that:

> The efforts of Washington High School should be recognized districtwide and used as a model for program development in other schools.

Of particular interest to the evaluators was the school's success in infusing the school's computer specialty program into the curriculum.

The Computer Data Processing program is clearly highly integrated with the mathematics department at Washington High school. The teachers are math teachers, there is an algebra prerequisite for full program participation, and students in the college-bound strand of the program do not stop with algebra. But the effects of the program's presence in the school have penetrated considerably farther than math. We had never seen so many computers in a school! In addition to the specialty program's computer laboratory, there is a math lab, a reading lab, a writing lab, and a science center--all with their own Apple IIs. The principal is not exaggerating when he boasts that "Computer technology has been infused into all departments of the school."

This did not happen by chance. As a vocational education teacher explained:

> The administration was clever not to make computer sciences a department. In order to succeed, they had to cooperate with other programs.

Although the program was initially threatening to some teachers and some departments, its fledgling need for whole-school involvement in order get off the ground quickly reduced any perceptions of territorial encroachment. Establishing Washington High as the computer center for the school district quickly became a common mission and did much to restore the faculty's sense of the school as a place where important educational things were happening. Nearly everyone got the "computer bug;" today, over 90 percent of the faculty are computer literate and use computers as a teaching tool.

The principal is committed to a belief that basic skills instruction is the responsibility of every teacher in the school:

> I feel strongly that the teaching of basic skills cannot be one teacher's responsibility. I have been harping on the teaching of reading and writing across the disciplines for years. I have insisted that all teachers have essay exams, which has caused the mathematics teachers some problems.

How does this philosophy play out in areas beyond the computer specialty program? The same vocational education evaluation report that spoke favorably about technology education and the computer program also noted above average integration of vocational and academic education in traditional vocational subject areas: "The use of basic and academic skills was observed in several classes through writing, mathematical, and computational skills." In this connection, one of the teachers commented that students in communications will often develop a resume in his co-op class much more effectively than they do in English. At the same time, students' reading levels tend to be low, and vocational education does not so much succeed at teaching reading as in increasing students' motivation and perseverance to do a job. This teacher believes that if students do not learn to read well in elementary school, it is very difficult for them to learn this skill in high school vocational education.

Asked about the utility of vocational education as a vehicle for improving basic skills, several co-op coordinators commented that vocational teachers teach basic skills in a camouflaged way--they teach writing and verbal communication skills through requiring various records, resumes, and the like from their students. Since many students like their vocational classes and stay awake in them, they may at least pick up a few basic academic skills that have drifted over their heads in other classes.

On average, the higher ability students at Washington are likely either to be in the computer specialty program or too busy taking college preparatory courses (foreign language, extra English, and math courses) to be in vocational education. Most of the vocational education instructors we interviewed acknowledged that their students are less likely to continue their education past high school than are the computer specialty students. Thus the challenge is to offer them courses that will entice them to stay in school (which vocational courses tend to do for many students, particularly those enrolled in co-op) and at the same time to prepare them for labor force participation. The current structure of vocational education at Washington does not provide intensive occupationally specific skill training, although most instructors try to stress job readiness and use

vocational courses to keep students in school long enough to earn the all-important high school diploma.

In summary, while there is acknowledgment of the need for academic and vocational education to be integrated, and there is commitment from many academic and vocational teachers to do the best they can, many believe that societal values have created a situation that militates against recognition of the legitimate role of vocational education, even in a school where only about 35 to 40 percent of the students enter postsecondary institutions.

Outcomes of the Computer Program

We did not obtain student-level outcome data for either the computer specialty program or the regular vocational program. Since some participants in the computer program attend part-time and actually graduate from other high schools, aggregation of college-going rates and job placements becomes complicated. There is attrition from the program--for every 200 entrants, only about 80 stay to the end--and educators worry about this. On the other hand, the specialty programs are considered exploratory and computers are not everyone's cup of tea. Many program completers do go on to postsecondary education at four-year state institutions, at private colleges and universities, including MIT, and at the Milwaukee Area Technical College. Others go directly to work. A computer program "alumni" group has formed at one large employer in the area.

Computer program boosters tend to emphasize other kinds of accomplishments as indicators of the program's success. Thus, for example, teams fielded by the program have been winning local, state, and national computing competitions on a regular basis since 1979. The specialty program teachers were able to partially repay the A.O. Smith Company for its long-term support by designing and delivering a computer training course that prepared company supervisors to use a computerized system of tracking employee absences. A summer program offers elementary school students an introduction to computers. Evening adult education programs are heavily enrolled.

All of these things contribute to the self-esteem of the school, the program, and--ultimately--the students who attend Washington High. Improving the school's image is an important outcome for everyone involved.

## V. The Teachers

Background, Training, and Experience

There are 127 teachers at Washington High School. Teachers in the Milwaukee Public Schools are unionized. Over the years, union officials have cooperated with district officials in finding ways to allow teachers in the career specialty programs to assume nonteaching responsibilities.

The vocational education teachers at Washington represent a mix of experienced, long-time practitioners and newer teachers. For example, the

department chairs of industrial-technical education and home economics have been at the school for many years, while one of the home economics teachers is new this year and another has been at the school for three years. Most of the teachers we interviewed were trained in the University of Wisconsin system, primarily at Stout, which is the main four-year university in the state for vocational education.

The Chairman of the Business Education Department has been at Washington High since 1967. She holds a bachelor's degree in business education and has graduate credits from the University of Wisconsin-Milwaukee. In order to maintain her certification, she must accumulate five credits every five years or spend some time working in a job related to her teaching assignments. The school system recently paid for her to receive training on WANG word processors and the IBM System 36.

One of the industrial-technical education teachers we interviewed is heavily involved in local and state Technology Education Associations; he is currently vice-president of the Wisconsin Association. He views this participation as important to keeping up with state and national trends in curriculum and instruction. His participation in these activities helps him to learn what others in his field are doing and to bring this knowledge to his work with students at Washington.

Ever since the beginning of the computer specialty program in 1975, provision has been made to release one participating teacher each semester for training in private sector uses of computers. The school district continues to pay the released teacher's salary. This component of the program is considered critical in the continuing effort to stay current with the field and is a valued professional development activity for teachers.

The Implementor: A Profile

The implementor for the computer specialty program is an extraordinarily dynamic person. If the school had conducted a nationwide search for a person to head this program, they could not have uncovered a better candidate. As it happens, her assignment as a math teacher to Washington High was a fluke. School level administrators have no control over teacher hiring or transfer policies. The principal said, "It's completely an accident as to how she got here, but I shudder to think what we would do without her."

The program's survival is largely in the implementor's hands at this point. She is the "front office" person who must make contact with and convince local businesses that the computer specialty program is a worthwhile investment. It will be mainly her responsibility to develop more placements if on-the-job training is to expand. Of course, she has the complete backing and full cooperation of the Advisory Committee and the school's administration. Nevertheless, the hustle is all hers.

The implementor is a "people person." One is struck by the personal interest she conveys in every interaction, particularly those involving students. A group of seniors heading off on a field trip is exhorted to ask intelligent questions and gently ribbed about the relative importance of

lunch in the context of the overall venture. A newly married couple is greeted with shouts and hugs. The pair met in the computer program; the wife is working while the husband attends college.

As a teacher and advisor, the implementor has a reputation for being helpful and caring, but tough. One student said, "When I came here, I was 'iffy' about the computer program. I heard that I would hate [the implementor] because she makes you work. What you've got to realize is that in the long run, it's all for your own good." Another student called her "one of the most influential people in my life." This boy started out in the computer program, but his primary interest is writing, especially poetry. Rather than try to hang on to him, the implementor arranged for him to enter a poetry contest, located a scholarship that allowed him to attend a summer literature seminar at Marquette University, and ultimately applauded his decision to drop out of the specialty program.

The implementor's right-hand person was also originally trained as a math teacher. An expert in the technical side of computers, he teaches the computer technology classes and keep the program's machines functioning. Needless to say, his full-time presence in the school is critical to the program's success. "Without him," says the principal, "we would be in trouble." A University of Wisconsin-Milwaukee faculty member is also in the school on a regular basis.[11] An Advisory Committee member, he also places and supervises student teachers in Washington's computer program and teaches in-service classes in the educational applications of computers for teachers from other schools.

Attitudes Toward Vocational Education and Students

The teachers we interviewed believe that vocational education, particularly co-op, can be an effective mechanism for keeping students in school, motivating them to continue their education at the postsecondary level, and helping them to prepare for life and work as adults. Their ability to prepare students for good entry-level jobs is limited by factors that are essentially beyond their control. At the same time, for many students, particularly those who are typically called the "at-risk" group, they believe that participation in vocational education gives students a chance to succeed at something, in many instances for the first time in their lives.

These attitudes reflect a commitment to their students and to what they are trying to do with students that characterized the comments of all the teachers we interviewed. For example, the home economics teacher who supervises operation of the parent-infant center emphasized the importance of the parenting classes to the young mothers whose children attend the center. A Communications teacher tries to "turn students on" to the point that they will decide to continue their education at the postsecondary level. During our interview, the vocational guidance counselor was on the telephone with a student who was in the process of dropping out of school;

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[11]Milwaukee has a strong tradition of school-college collaboration.

school work often improves, and they are learning skills and behaviors that may improve their chances of going on to postsecondary training or obtaining a good job when they leave high school.

One of the most important themes of these activities--and also of the specialty--is the consistent pattern among the administrators and teachers responsible for their implementation of getting students into smaller groups where they can provide a level of individual attention and caring that seem critical to the 55 percent of Washington's students who are economically and educationally disadvantaged. Both individually and in groups, each of the teachers we interviewed emphasized the need to create an environment in which they can help students build their self-esteem and thus begin to view themselves as worthwhile individuals who have the capability to succeed both in high school and beyond.

As noted throughout this case study, the computer specialty, initially established at least in part to support the district's desegregation requirement, is clearly an excellent program that has helped to revitalize Washington by attracting good students, extensive private-sector commitment, and pride on the part of administrators, teachers, students, and the district. Even so, perhaps the most important indicators of success--or at least of a strong movement in that direction--at the school overall are the other programs and initiatives underway to address the academic and personal needs of all the students there. One hopes--and expects--that Washington High School will continue on its path toward recapturing the excellence it was known for in Milwaukee in the past.

administrators, teachers, and students--is working hard to achieve the educational goals that characterize the school system's philosophy.

First, the school is clearly under control, a critical first step in achieving excellence, if the lessons of the school effectiveness research are to be believed. There are security guards and strict hall monitoring policies in place, but the net impression a visitor has is of an orderly and all-in-all pleasant environment. While administrators and teachers appear uniformly sensitive to and realistic about the personal and educational problems of many of the students, they have obviously succeeded in creating an environment in which students can (and do) work hard at learning. Further, they have high expectations. The specialty implementor expects her students to do their homework, the co-op coordinators insist on responsibility--both at school and on the job--of the students they admit to their programs, and the pre-co-op director stresses with parents as well as students that participation in her program is an expensive privilege that they must take seriously.

The computer specialty is very important to Washington High School--computer technology has infused much of the school's academic and vocational offerings. It draws talented students from around the city and suburbs, thus inevitably improving the overall quality and self-image of the school. Perhaps most striking, it has attracted very serious and important private-sector involvement to the school at a level of intensity that is not often seen, for all the rhetoric, in inner city high schools. It has contributed to a "business" attitude among faculty and administrators that overall has infused an important problem-solving mentality into education at Washington.

Perhaps even more impressive than the computer specialty program itself, which is clearly the school's centerpiece and pervades many of the departments, are the myriad other programs that Washington has implemented to address the personal and educational needs of "the other" students--those whose ability, achievement, or interest levels preclude their involvement in the specialty. For example, the pre-co-op program, though new this year, has the potential to turn around some of the school's most highly at-risk students. Already the participants are doing better: they are coming to school regularly, working on reading, math, and other deficits, and are getting good evaluations from their employers. CARE, using Chapter 1 funds to implement family clusters for students who need smaller groups to identify with than the student body as a whole, is also attacking the attendance, behavioral, and academic deficits of many students.

The Chapter 1 writing lab is helping students learn to write as well as to do word processing, and, perhaps most importantly, helping them develop a sense of competency and achievement. The parent-infant center is attempting to keep young mothers in school and at the same time to learn how to care for themselves and their children in the "real world," a goal that, if successful, may help to reduce the likelihood that the current babies will experience many of the same personal and academic difficulties that their mothers face at school and elsewhere. Co-op, which is a key part of the "traditional" vocational education at Washington, is both a dropout prevention strategy and, according to all of the co-op coordinators, an arena in which some of the school's students experience success for the very first time in their lives. The result is that their commitment to their

heard at Washington. The students who are struggling elicit a great deal of sympathy and a desire to help in any way possible from both teachers and peers. Some faculty and administrators do believe that many students have unrealistic aspirations, given their academic deficits. However, the goal is to overcome as many problems as possible in the four years that the school can have some impact on these individuals' lives.

## VII. Summary Themes and Indicators of Success

The Milwaukee Public School system has developed an elaborate plan for the delivery of career and vocational education. It is rooted in the belief that all students should receive occupational preparation, a term that in this context is very broadly defined. Thus, the student who expresses interest in becoming an engineer and takes four years of high school math through calculus is gaining occupational preparation just as surely and deliberately as the student who enrolls in an automotive repair sequence. Philosophically, traditional vocational education fields are viewed as disciplines, differing from the academic fields only in the centrality of occupational preparation in their primary mission statements.

The career specialty magnet programs are the real test cases for this overall philosophy of vocational education. Ideally, the programs are designed to be interdisciplinary, offering students an unusual opportunity to make connections between required academic subjects, the often more attractive hands-on electives, and finally, the possible career paths to which a program of studies may lead. It is probable (just by the law of averages) that the effectiveness of the various magnet programs has been variable. But this may have more to do with vision and leadership at individual schools than with the ultimate workability of the plan.

At the school we did visit, the specialty program is working well and in fact has achieved an interdisciplinary character that is rare in secondary education. But that is only part of the story. The majority of students at Washington High School are only tangentially affected by the success of the computer data processing program. We were equally interested in how the school balanced its responsibilities and resources as both a magnet program host and a comprehensive, neighborhood high school. All in all, we were impressed with both sides of the equation.

### Washington High School

The district's approach to educational (including vocational educational) improvement is both reasonable and ambitious. But how does it play out in a school that has experienced some unique problems (referred to by students, teachers, and administrators as "the troubles" that occurred in the 1970s) along with the full set of difficulties that have faced most urban high schools in recent years? While Washington High School may not "be there" yet, in terms of student retention and achievement, confidence that most students leave the school well prepared for postsecondary education or good jobs, and the like, it is clear that the school--its

Attitudes Toward Vocational Education

Students we interviewed at Washington tend to be proud of the computer specialty, but they all wanted to make the point that there is more to Washington High School than just that program. Several of them had chosen Washington because of the specialty but had later changed their minds. The student government president, for example, felt that the specialty took too much of his time and changed to a regular college preparatory program. One girl originally enrolled in the specialty because her mother does data processing at a K-Mart and believes that computer expertise will assure people of good jobs in the future. This girl has dropped out of the program, however, because she prefers working with people rather than with machines. (She plans to be a psychologist or a social worker.) Another senior had initially chosen the specialty at Washington because he wanted to attend the school (some of his friends were enrolling at Washington) and knew that signing up for the specialty would get him there. A good student, he has since "taken" to computers and plans a career as a computer maintenance and service technician.

Because there is so much pressure to complete graduation requirements and pass tests, vocational education probably has less influence on retaining potential dropouts and preparing them for jobs than it did in the past. Students who remain in school are entitled to their elective choices, but co-op placements are limited to the most responsible and the highest achievers within a vocational area. Understandable though the system may be, hard-core disadvantaged students are probably not well-served by this pecking order. Washington High may typify the conundrum of our educational times: how to establish defensible standards that do not become stone walls to the ideal of equal education and employment opportunities. Urban vocational and academic educators will grapple with this issue for many years to come.

Hopes and Aspirations

All of the students we talked with plan to go to college. One senior will attend the two-year Milwaukee Area Technical College to become a computer service technician. Another boy plans to go to Madison in business. Two girls plan to go to the University of Wisconsin at Madison or Whitewater--one in psychology and one in English.

The President of the Student Government originally came to Washington High for the computer specialty program. Now enrolled in "PAT" (Program for the Academically Talented) classes, and focusing on English, he plans to attend Morehouse College, a prestigious historically black institution, and return to Milwaukee for a career in politics. He is very sure about his plans and, given his articulateness at age 17, his aspirations seem plausible.

While these students are undoubtedly unrepresentative of the majority, their commitment to and belief in the school are striking. They certainly do not seem to find Washington High a frightening environment, and if anyone were to be picked on, it seems likely that the very small number of overachievers would be singled out. "Alienation" is not a word that we

preferring to maintain its image as an institution that can meet the needs of all its students under one roof. The time is rapidly approaching, however, when this option will no longer be viable, despite the community's philosophy of education. Although the high school has managed to cling to nine of the 10 vocational programs that flourished a decade ago, enrollment in several programs is increasingly marginal and two departments (home economics and horticulture) have been reduced to a single instructor.

School Climate

Fridley High School is a very orderly place. The Director of Vocational Programs is also the Assistant Principal. He is specifically responsible for upholding the school's discipline and attendance policies, which have recently been strengthened. Improving attendance rates is a particular concern. Not long ago, the district noticed a direct correlation between increased numbers of students with after school jobs and an unacceptably high absentee rate. After working the 3-to-11 p.m. shift at fast food restaurants, students were finding it all too easy to oversleep, missing school altogether or arriving late. Careful monitoring and a tough line on excuses have improved the attendance situation.

Disciplinary procedures are also rigorously but fairly enforced. At most hours of the day, one or more students can be found serving in-house suspensions on the row of chairs outside the Assistant Principal's office. This punishment-by-boredom technique brings some students around. Others require more creative measures. One recidivist truant and troublemaker was astonished to find that his penance was an obligation to drop by the office each day to say "Good morning" to the Assistant Principal. This simple requirement succeeded in connecting the boy to the school where other, harsher methods had failed.

Fridley is a good, safe, structured environment where students can and do learn. The school and the community care about the students and are proud of them.

## II. The School and the Community

Demographics

As a community, Fridley has changed over the past 10 years. At one time, shortly after its rapid post-Korean War construction, the town was the most densely populated suburb in the Twin Cities area. Its original citizens were upwardly mobile blue-collar workers and their families who prized family stability and saw high quality education--including extensive vocational education--as the key to their children's future.

Today there are really two Fridleys. The central core of the community, where the high school and middle school are located, is a neighborhood of well-tended, single family homes--most of them without school-age children. (Only 24 percent of the homes in Fridley shelter school-age children today.) In contrast with the community's dominant ethos

INDEPENDENT SCHOOL DISTRICT #14
Fridley, Minnesota

Nancy E. Adelman

# I. Overview

## The Setting

The suburb of Fridley is situated to the north of Minneapolis-St. Paul, just outside the interstate beltway that circles the Twin Cities. Its western edge fronts the Mississippi River. At 7:30 on an unseasonably warm spring morning, the neighborhood surrounding Fridley High School looks like an advertisement for the American dream. Commuters emerge from comfortable homes on treelined streets and enter sensible cars for the commute to the city. Groups of well-dressed children wait on street corners for school buses or amble slowly toward a presumably scholastic destination.

Fridley High School is low and sprawling, built around four central courtyards that are not visible from the street. A refugee duck from Moore Lake across the road parades on the school roof, perhaps the same duck that raised its offspring in one of the courtyards the previous year. School buses roll in and students pile out. The problem for Fridley is that there are fewer of them than there were last year and only 60 percent as many as there were 15 years ago. Fridley is a "graying" community, a circumstance with vast implications for its school system generally and its vocational program in particular. Like many suburban areas throughout the nation, Fridley is watching its enrollment curve fall off the bottom of the chart.

## Philosophy/Mission/Goals

As stated in its promotional literature, the broadest mission of the Fridley Public Schools is "to provide for the educational needs of its students." At the high school level, the system is committed to providing comprehensive education that will prepare all students for entry into either postsecondary education or the world of work by offering:

- Opportunities for satisfying the personal and academic needs and interests of each student
- The opportunity to explore a variety of career options
- The opportunity to explore family living and other life experiences
- A balance between theoretical and practical courses
- Opportunities for students to relate present education experiences with future employment possibilities

Unlike two-thirds of the school districts in the area, Fridley has so far resisted entering into a cooperative vocational education arrangement,

If consolidation becomes necessary, a number of configurations are possible, including magnet schools, upper and lower division secondary schools, and other cooperative arrangements. While they recognize the inevitability of change in their school system, some local educators are concerned that some alternatives being examined, such as magnet schools or an area vocational center, are likely to result in a vocational "track" that will discourage the broadly based participation in vocational education that the community has traditionally valued.

Supports and Constraints

Obviously, declining enrollments and scarce resources are major constraints on Fridley's vocational education programs. Sensitive to both the local economy and the overwhelming proportion of voters without school-age children, the school board has been reluctant to place a bond issue before the public. Recently, however, the board voted to attempt a $13 million levy during the 1987-88 school year that would generate about $1.6 million per year of local effort.

While vocational education in Fridley is not considered a luxury that the town can ill afford, there is general agreement that vocational programs are expensive. Per pupil expenditures in vocational education are higher than in any other area except, perhaps, physics. In 1986-87, vocational programs received $35,625 from the general fund (state and local monies) and $17,152 for capital expenditures. Salaries and benefits for vocational program staff came to about $250,000. The district obtained $11,000 from the state's Perkins Act allocation for use in its vocational curriculum for handicapped and disadvantaged students. State vocational categorical aid to the district was over $101,000. Total expenditures for vocational education were just over $400,000, approximately $400 per student based on total high school enrollment.

If cost constraints and declining enrollments have had a serious impact on vocational education in Fridley, the crowning blow was the shortening of the school day--from seven periods to six, accompanied by additional, locally mandated requirements in mathematics and computer literacy for all students. Not only are there fewer students altogether, but those who remain have fewer elective slots open in their programs.

One final constraint mentioned by several vocational teachers concerns the registration procedures employed by the high school, considered particularly detrimental to advanced vocational courses. Registration for the following year begins in December and closes at the end of January. It is difficult for a student in the first semester of Accounting I, for example, to decide whether or not to take Advanced Accounting before first semester grades are even completed. Schedule revisions are allowed in May and June, but for most students, this is simply an announcement over the P.A. system. Furthermore, by that point, teacher assignments for the following year have been determined. If Advanced Accounting did not "make" in January, chances are it will not be resurrected in June.

Relationship to the Academic Program

Fridley requires completion of 21 credits for graduation. The six-period day allows a maximum of 24 credits in four years. As Table 1 shows, 13.5 credits must be taken in core disciplines, physical education, computer science, and health, leaving 7.5 units available for elective choices, principally in the junior and senior years. Students must take a math proficiency test in ninth grade; those who fail to obtain a passing score are required to enroll in a remedial math course in Grade 10.

Table 1

High School Graduation Requirements
Fridley, Minnesota

| Subject Areas | Required Credits |
|---|---|
| English | 4.0 |
| Social studies | 4.0 |
| Science | 2.0 |
| Mathematics | 2.0 |
| Physical education | 1.5 |
| Computer science | 0.5 |
| Health | 0.5 |
| Electives | 7.5 |
| TOTAL | 21.0 |

Elective courses are available in all the academic departments as well as in art, music, and vocational education. A popular Teacher Aid (TAID) program also allows a limited number of students the experience of working for the various departments (including Business, Horticulture, Home Economics, and Industrial Arts) as clerical, laboratory, or special assignment assistants.

## IV. The Programs

Fridley High School offers vocational programs through five departments: Business, Horticulture, Home Economics, Industrial Technology (often referred to as Trades and Industry in other settings), and Vocational Cooperative Work Programs. For a school of its size, Fridley continues to support a large number of vocational courses, with considerable scope and some sequence in most vocational areas.

Although school district rhetoric emphasizes exploratory vocational education, the available programs actually offer students the opportunity to engage in a good deal of occupationally specific training in typing, accounting, business occupations, distributive education (marketing), horticulture power and equipment, drafting, wood technology, electronics, metals technology, and graphics. Table 2 outlines the vocational offerings listed in the school's most recent catalogue. If enrollment falls below 10 students, a course may be cancelled.

Table 2

Vocational Offerings
Fridley High School

| Department/Courses | No. of Credits | Prequisites |
|---|---|---|
| BUSINESS | | |
| Beginning Typing | .5 | None |
| Intermediate Typing | .5 | Beg. Typ. |
| Advanced Typing | .5 | Inter. Typ. |
| Electronic Machines/Bus. Procedures[a] | 1.0 | Beg. Typ. |
| Accounting I[a] | 1.0 | None |
| Advanced Accounting | .5 | Beg. Acct. |
| Basic Law | .5 | None |
| Consumer Math[b] | .5 | None |
| Electronic Math[b] | .5 | None |
| Stenospeed | 1.0 | Beg. Typ. |
| Marketing I | .5 | None |
| HORTICULTURE | | |
| Power and Equipment I | .5 | None |
| Power and Equipment II | 1.0 | P&E I |
| Natural Resource Management | .5 | None |
| Recreational Animals/Animal Science | .5 | None |
| Ornamental Horticulture | 1.0 | None |
| Auto Care/Mechanics for Begin. Driver | .5 | None |
| HOME ECONOMICS | | |
| Clothing Today | .5 | None |
| Housing/Interior Design | .5 | None |
| Independent Living | .5 | None |
| Family Relationships | .5 | None |
| Exploring Childhood | .5 | None |
| Food for You | .5 | None |
| [a]Computers in the Home | .5 | None |
| INDUSTRIAL TECHNOLOGY | | |
| Computer-Aided Drafting (CAD)[a] | 1.0 | None |
| Vocational Architecture | 1.0 | CAD |
| Drafting and Design | 1.0 | CAD |

Table 2 (Continued)

Vocational Offerings
Fridley High School

| Department/Courses | No. of Credits | Prequisites |
|---|---|---|
| Industrial Technical Math[b] | .5 | None |
| Wood Technology | .5 | None |
| Advanced Wood Technology | .5 | Wood Tech. |
| Voc. Bldg. Trades Tech. | 2.0 | Wood Tech. |
| Electricity Technology | .5 | None |
| Electronics Tech. I | 1.0 | None |
| Electronics Tech. II | 1.0 | Elec. Tech. I |
| General Metals Tech. | 1.0 | None |
| Metal Machining Tech. | 1.0 | Gen. Metals |
| Voc. Welding Tech. | 2.0 | Gen. Metals |
| Graphic Arts Tech. | 1.0 | None |
| Voc. Graphic Arts Tech. | 2.0 | Graph. Arts |
| VOCATIONAL CO-OP WORK PROGRAM | | |
| Business Occupations Class[c] | 1.0 | |
| Co-op Business Occupations | 1-2.0 | |
| Occup. Relations/Trade & Industry[c] | 1.0 | |
| Co-op Trade and Industry | 1-2.0 | |
| Marketing II[c] | 1.0 | |
| Distributive Retailing | 1-2.0 | |
| Horticulture Co-op | 1-2.0 | |

[a]Meets the 1/2 computer credit requirement for graduation
[b]Meets 1/2 of the 2-credit math requirement for graduation
[c]Classroom courses taken in conjunction with on-the-job experience

At Fridley High School, only seniors may enroll in co-op programs. Three hours of release time for on-the-job experience yield two credits toward graduation. Students may also opt for one or two hours (1 credit) or receive one credit for after school work experiences.

In terms of enrollments and number of instructors (four), the Business Education Department is the largest vocational program at Fridley. Beginning typing (personal service rather than vocational) drew 205 students, electronic machines/business procedures 117, and Basic Law 65. Neither Stenospeed nor Advanced Typing was offered during 1986-87 because of low demand. Department staff are heartened that a section of Advanced Typing was "made" for the 1987-88 school year.

A recent evaluation by the North Central Association found the Fridley business education program healthy. The major limitations of the program were found to be a shortage of microcomputers, a lack of Basic Business/ Business Management courses, and overly large beginning typing classes. In

their self-evaluation, business instructors indicated that they found themselves falling short on providing (1) career awareness and orientation to work, (2) assistance in placement, guidance, and follow-up, and (3) related student activities.

Horticulture is the suburban version of the vocational agriculture program. With its emphasis on floriculture/landscaping and the repair of small engines (such as lawnmowers and chain saws), horticulture is quite different from the traditional rural "vo-ag" model. However, since most horticulture teachers grew up and were trained in the vo-ag system, they tend to evaluate themselves and their programs (perhaps unfairly) against traditional criteria. Thus, the Fridley horticulture teacher (there is presently a single instructor in this area) criticized his program for failing to provide supervised occupational experience (SOEP) and for failing to serve adults. Quite possibly neither of these objectives is appropriate for Fridley in 1987.

The North Central Association found Fridley's horticulture program to be too heavily focused on engine maintenance. Other criticisms appear to be related to a single person's trying to coordinate too many aspects of a complex program (e.g., adequate maintenance of the campus's landscape plantings, greenhouse, and equipment and adequate supervision of the co-op component of the program).

The entire home economics program is now the responsibility of one instructor. The teacher commented that roller skates would be useful for supervising her domain, which spreads across five classrooms and includes the kitchen area and sewing room. Despite careful maintenance of appliances, the time is approaching when the kitchen equipment will need replacing and updating, a capital outlay that the budget can ill afford. In the meantime, the instructors make the best of what they have and quietly lament the passing of the advanced and occupational home economics classes that characterized another era.

In order to keep enrollments in home economics high enough for survival, the instructor has developed a "Computers in the Home" class, which satisfies the new school computer requirement for graduation. The course began as a money management unit in the Independent Living class. Now a semester course in its own right, the curriculum covers databases, spreadsheets, simple room design and floor plans, electronic banking, and making an energy audit of the home.

The Industrial Technology Department encompasses a wide variety of instructional areas, including electricity/electronics, metals, woods, welding, graphic arts, and drafting. Four staff members cover the instructional content in all these specialties. In relationship to total school enrollment, the North Central Association found Fridley's industrial offerings to be "far above average." Although it is far from having enough high tech equipment (such as computers for CAD) to meet student demand, the school has moved as rapidly in this direction as budget constraints allow. Staff yearn for a larger drafting room, a CAD-CAM lathe, a laser writer, and electronic training units with robotic arms. The ability to purchase some of this expensive equipment through the pooling of multiple school

districts' resources may be one consolation prize if Fridley is forced to consolidate.

In 1986-87, enrollments supported two sections each of advanced woods, graphic arts, and CAD, and one section of 10 other courses listed in the course catalogue. Vocational graphic arts technology was not offered.

Special Populations

Fridley High School has a transition vocational education program for handicapped and disadvantaged students. In 1986-87, it served a total of 107 students in the following categories:

| | |
|---|---|
| Orthopedically handicapped | 4 |
| Educable mentally retarded | 11 |
| Socially/emotionally handicapped | 19 |
| Learning disabled | 48 |
| Educationally, socially, or economically disadvantaged | 25 |

Instruction takes place in a Student Resource Center. Units in what is termed a "fundamental careers curriculum" include:

- vocational mathematics
- sources for locating jobs
- skills in applying for work
- safety
- managing money

In addition to these curriculum packages, students engage in career exploration through the use of kits (the Discovery Program) that introduce them to vocational areas such as plumbing, electricity, accounting, small engines, masonry, animal care, medical records, and graphic arts.

Various vocational assessment instruments are used throughout a handicapped student's high school program. Results of these tests, plus interests generated through the Discovery Program, suggest appropriate nonpaid placements in a community-based career exploration program for eleventh and twelfth graders. Students visit a career site five hours per week for a quarter and may ultimately become familiar with eight work settings during their last two years of high school. A job coach works with employers and school personnel to develop the sites.

As policy, Fridley encourages vocational mainstreaming. However, the special education department believes there is a considerable way to go before fully effective programming for handicapped and disadvantaged students will be achieved. Special education staff assist vocational program faculty in adapting regular vocational programs to the needs of individual students. About 10 to 15 handicapped students per year participate in the paid co-op work program. Their placements are specifically generated and supervised by the special education coordinator. The Minnesota Department

of Rehabilitation Services and the county transition project assist students and their families with post-high school planning. Many handicapped students go on to an AVTI or a community college.

Classroom Components

Fridley's vocational classrooms, shops, and laboratories are modestly but adequately equipped. Most industrial technology shops are located on the back side of the school, with easy access to a separate garage-like structure that houses larger projects, tractors, lawnmowers, and assorted materials. Business, drafting, home economics, and the horticulture program's greenhouse and classroom are on other corridors of the sprawling complex.

At the time of our visit, late in the school year, students know the routines in their vocational classes. For example, an early morning welding class moves smoothly through the process of opening up the garage, backing out the school-owned van, and maneuvering the 12 to 15-foot metal docks-on-wheels that they have been assembling, on commission, as their class project. (These docks, which can be removed from the water for the winter, are apparently popular items with the many area residents who own lakeside property.) The students are equipped with the required safety glasses and clearly know their way around the materials and equipment. Their teacher notes that at this point, his role is more like that of a foreman or boss than a teacher.

In an advanced woods class, all the students are working independently on projects that they hope to finish before the end of the school year. Items include clocks, stereo speakers, a computer table, and bedside tables. Most students indicate that they are taking this course for reasons of personal interest and accomplishment rather than any intention of pursuing a career in wood working. Like the welders, they are comfortable with the shop and its machinery. Occasionally a student consults with the instructor on the next step. Most seem to enjoy thinking through procedures and making decisions on their own. At the 10-minute bell, they lock away their projects, sweep up the sawdust, and pick up their belongings before moving on to the next class.

The floriculture/landscaping classroom is crowded as about 25 students listen to general instructions for the day and plans for an upcoming field trip. A large refrigerator of the type used in florist shops buzzes and hums, making it difficult to hear from the back of the room. Shortly, the class breaks into smaller work groups. A few students adjourn to the attached greenhouse to care for the lush greenery that will be sold to the public. Most gather around the marble-topped work tables to assemble floral arrangements that will be graded as class projects. The class appears to be about evenly divided between girls and boys.

The current director of vocational programs began the horticulture program in 1971. At one time, there were three instructors and the curriculum included production agriculture.

Nineteen students are pounding keyboards in intermediate typing during the last period on a Friday afternoon. First there is the warm-up exercise, accompanied by gradually decreasing chatter. The instructor returns graded papers and outlines the new assignment--the typing of a short report with the indentations, blocked paragraphs, bullets, and other intricacies associated with production typing. The typewriters are electric and in good condition, but the observer (who writes reports for a living) wonders whether these students will ever encounter anything other than microcomputers and word processors in the workplace. Granted that touch-typing skills are transferable to higher technologies, the student who knows a word processing program will still have the edge in the marketplace. Can the typical comprehensive high school afford the 25 microcomputers per business classroom needed to offer each enrollee word processing training? Can they afford not to offer such training? In 10 years--perhaps sooner--the typewriter may be completely obsolete in the business world. These business students are the transition generation.

Marketing I attracts two sections with about 20 students each. The curriculum is organized around units such as the different ways in which businesses are organized, "investing" $10,000 and watching your investment's progress in the stock market reports, salesmanship, and how to find a job. Marketing II is a two-semester course taken in conjunction with co-op work experience. Sixteen students are enrolled (about half as many as 10 years ago). Topics covered in the classroom include business math, entrepreneurship, setting up a business, taxes, store security, labor/management relations, and how to resign gracefully, among others. Each student must present an oral report on his or her future plans. On this particular day, the class is taking the Armed Services Vocational Aptitude Battery (ASVAB)--an interest and aptitude inventory that Fridley also administers to its industrial technology and some transition program students. The results are used by students, their families, and guidance counselors in making post-high school plans.

The drafting room is even more crowded than the horticulture classroom. Traditional drafting tables share space with a row of computers for CAD instruction. Drafting is a popular elective at Fridley High School. This year 45 students signed up for the introductory course and over 20 were enrolled in the second year class. For next year, the instructor has been forced to turn away students at both levels. Instruction is largely individualized and the final projects displayed around the room are truly impressive. Several boys demonstrate their skills with a CAD program and print out three-dimensional designs that make you wonder how we have managed to fall behind in our industrial capacity. These kids are creative, they understand the technology, and they are only 16. But like microcomputers for word processing, there are simply not enough stations for large numbers of students to get extensive experience in CAD during high school. The boys we observe are putting in some extra time during a study hall or lunch break.

Work Experience

Although it is considerably diminished in comparison with the 1970s, Fridley's cooperative (co-op) work experience program remains an integral

part of its overall vocational offerings. At one time, the high school supported three full-time and two half-time co-op work coordinators. Next year, there will be one half-time and four one-fifth time coordinators. On a full-time equivalent basis, this is approximately one coordinator to 45 co-op students.

In 1986-87, the half-time co-op coordinator for the trades and industry area placed 22 students in paid work stations that he developed, at least officially, in an eight-day extension to his 10-month teaching contract. (One can imaagine that finalizing arrangements might take somewhat longer than this.) He visits each student two times per quarter on the average.

The horticulture program places 10 students in co-op during the school year. Three of these placements are with the school district for maintenance of athletic fields and other parts of the school property. During the summer, larger numbers of students participate in a grounds maintenance program, receiving one-half credit toward graduation for learning to operate various pieces of equipment as well as an hourly wage once the training period is over. Some students participate in this program for two summers. The more experienced workers act as foremen for work crews. The horticulture teacher receives a 33-day extension to his teaching contract for his co-op activities and supervision of the summer program. During the instructor's approximately six-week summer vacation, the Director of Vocational Education or the school custodians provide the student foremen with back-up advice and supervision.

The Business Department offers what is termed a "capstone" course in business occupations that includes on-the-job experience. This senior year program qualifies the department for state vocational education funds. Last year, 11 students were enrolled. The distributive retailing cooperative program placed 15 students.

Employers who agree to take on a co-op student are responsible for on-the-job supervision, socialization of the student to the workplace, and training in any specific skills necessary to perform the job. Employers grade students' performance each semester. In general, they appear to be pleased with the Fridley High School students they have sponsored. The Trades and Industry coordinator noted that a few employers have reimbursed co-op students for continuing their training at an AVTI.

Overall, about eight percent of Fridley's total high school enrollment participated in cooperative work experiences during 1986-87. Developing placements does not seem to be a particular problem in the metropolitan Minneapolis/St. Paul area. Rather, like all the elective courses at the school, co-op is fighting an uphill battle against increased graduation requirements, a shorter school day, and the demographic changes described earlier. There is also the fact that many students find their own jobs, for which they do not receive credit or release time, which come without the teacher supervision, employer scrutiny, and classroom requirement of co-op.

Extracurricular Components

Fridley supports chapters of all the major student organizations associated with particular vocational areas: Future Farmers of America (Horticulture Club), the Vocational Industrial Clubs of America (VICA), the Distributive Education Clubs of America (DECA), etc. Students routinely participate and win prizes in the local, state, and national competitions sponsored by these clubs, as well as at the State Fair. Fundraising to support club activities is a major annual endeavor. As he distributed a delivery of suntan products that students had sold door-to-door, one teacher mildly complained about the necessity for the sales campaigns; however, he is resigned to their inevitability.

The accomplishments of vocational students are recognized by the school in several ways. Display cabinets in the halls showcase trophies, ribbons, and prize-winning projects. The school sponsors an annual Fine and Practical Arts Festival where parents and the community at large may view student projects. The district bulletin, principal's newsletter, and school newspaper publicize vocational honors and victories as well. In fact, says the Director of Vocational Programs, "There is considerably more recognition of students than of teachers."

Integration with Academic Programs

Information presented in Table 2 indicates that several vocational courses meet mathematics or computer science requirements for graduation. In addition, the Director of Vocational Programs is currently lobbying to have horticulture, electronics, and home economics bear some science credit. For the first time next year, the building trades and physics teachers will work cooperatively on instructional units that present principles of physics for the noncollege-bound student. The North Central Association has also recommended that the business, home economics, and English departments should collaborate on the teaching of word processing, spreadsheets, databases, and writing skills.

Most of the relationships between vocational and academic offerings at Fridley High School seem to have grown out of vocational education's survival instinct rather than out of any conviction that better integration of the theoretical and the applied will result in better education. The fact is that it is difficult to concentrate on innovative strategies when your program and possibly your job are on the line.

Outcomes

On the average, Fridley sends 45 percent of its graduates to four-year colleges, 10-12 percent to community colleges, and 12-15 percent to AVTIs. As in most Minnesota high schools, the dropout rate is low and there is no indication that it is increasing as a result of stricter graduation requirements.

Students taking vocational courses are not necessarily among the approximately 35 percent of graduates who do not go directly on to postsecondary education. The drafting instructor estimated that about 80 percent of the students taking his advanced courses pursue their education. About three-fourths of the students in Marketing II plan further education next year and half the students in building trades classes will probably go on. During the past year, 16 junior and senior Fridley students (including five vocational students) elected to attend courses at colleges, community colleges, and AVTIs under the state's new postsecondary enrollment option, which requires school districts to pay tuition expenses.

Fridley undertakes a student follow-up survey every five years. The last survey established the post-high school activities of 264 members of the class of 1984, 47 percent of whom described themselves as having been in the General high school program. Forty-five percent of the graduates were attending college or university, 13 percent were enrolled in community colleges, and a very large 27 percent were in postsecondary vocational schools. The survey found that 75 percent of the graduates were employed, indicating that many worked and attended school simultaneously. No information is available on the relationship between high school vocational training and post-school, training-related job placements.

## V. The Teachers

Fridley High School has 36 full time equivalent faculty members in its regular program and six special education teachers. Eleven instructors teach in the vocational programs, some of them on a part-time basis.

The vocational staff is highly educated and highly experienced. Nine of the 11 teachers hold masters degrees and all have been teaching for more than 15 years. Most hold multiple vocational certificates and a few are also qualified to teach other subjects, principally physical education or health.

In order to renew their certification, vocational teachers in Minnesota are required to work 108 hours in their specialty area every five years. Most of these hours are filled by attending upgrading workshops and conferences. Some teachers, however, hold summer jobs in the field they teach. A trades and industry instructor, for example, has a contracting business on the side and easily meets this standard. Others make special arrangements with business and industry as needed.

The majority of Fridley's vocational instructors specifically trained for a teaching career and entered the profession as young adults directly out of college. The drafting teacher is an exception. His first career was with the Minnesota Highway Department where he did surveying, soil and concrete testing, "soundings" of the earth, and design work. He has also built several houses, including the log house he currently inhabits. He became a teacher 20 years ago, after obtaining a degree in industrial technology.

The vocational teachers and other school or school district personnel we interviewed feel strongly about the value of vocational education in the total curriculum of a comprehensive high school. Some are bitter about what they see as the "elitism" of national reports like A Nation at Risk. As one vocational coordinator put it, "The worst thing in education right now is the message out of Washington [saying] that we should totally eliminate vocational education."

These educators accept the fact that unstoppable demographic trends are curtailing their vocational programs. What they find indefensible is the way in which other institutions, families, and the public have bought into the argument that stronger academics are the sole solution to all the nation's problems. For example, they say, surveys of employers keep harping on their desire for employees with good basic skills. The schools respond by raising academic requirements, but the reality is that without some job-related skills, you can't even get an interview. The university comes in for particular criticism. Although a foreign language is not officially required for admission to the University of Minnesota, that institution has "suggested" that foreign language study will help a student's chances. Fridley parents have taken this hint to heart; next year, an incredibly high proportion (67 percent) of incoming ninth graders are signed up for a foreign language, leaving them only one-half credit for another elective in their freshman year.

Vocational education supporters in Fridley believe that a concerted effort to educate the public is called for. As the Superintendent of Schools put it, "We need to break down the stereotypes of vocational education." One idea being contemplated is a Registration Night when students and their parents can talk with teachers and guidance people and obtain more detail on course offerings before signing off on next year's program. "Then," says the trades and industry coordinator, "we could change 'the birdhouse' image of industrial arts."

## VI. The Students

The student population at Fridley High School is homogeneous: white and middle class. Less than one percent of the students are minorities. In the hallways, different hair and clothing styles indicate that this school, like most, has its cliques: the preps, the punks, the jocks, or whatever the local nomenclature may be. Still, the students are more alike than different.

There is no particular way to characterize the students we observed and interviewed in vocational classes. They were uniformly well spoken and polite, engaged in their work, eager to demonstrate or describe what they were doing. Along with the fact that there are fewer of them than in previous years, their teachers say that they are more uniformly average in ability. The genuinely "academic" students no longer have room in their programs for vocational electives, even though the interest may still be there. Naturally, there is nostalgia for the year when nine National Honor Society students were enrolled in horticulture.

Teachers also perceive a difference in attitudes. For example, minimum wage jobs are not acceptable to many students. Nor are they willing to do things like go for a job interview if it interferes with their social lives. This is probably less a comment on vocational students than on a whole generation, whose values and priorities often seem mysterious to those of us who were raised on a more liberal ration of guilt.

Most of the students we interviewed were taking particular vocational courses for personal use. Two seniors in the wood technology course expected to attend four-year colleges. One had been accepted at a public institution but was continuing to look for a "hockey school" that could use his talents. He plans to major in business or engineering. The other boy would like to take a year off and then attend a "general" college. In a welding class, we met one student who is already working in the carpentry business and plans to continue in that field after graduation. Another has enlisted in the Army for four years, requesting training in machining. A third has made no post-high school decisions yet.

A popular annual event at Fridley is a real world update by a panel of former vocational students. Of course success stories are preferred. One recent panelist described his job as a supervisor for a cabinetmaking firm at which he earns $35,000 per year, a figure that far surpasses average salaries for college graduates in the Twin Cities region. Another favorite son is young John Barnitt, who applied his high school-learned welding skills as a crew member on the Stars and Stripes during its successful challenge to bring the America's Cup home.

## VII. Summary Themes and Indicators of Success

Fridley's story is being repeated in many suburbs all over the country, but particularly in the northeast and the midwest. The idea of the comprehensive high school, with a wide variety of offerings that appeal to the full cross-section of adolescents, is being threatened by a combination of factors that include (1) declining enrollments accompanied by decreasing financial resources and (2) the impact of state and/or local changes in high school graduation requirements and scheduling patterns. Usually, the ultimate result is the need to make painful decisions: dropping courses or whole programs, RIFing staff, closing a school or changing its structure.

As the negative factors pile up, the first areas to feel the pinch are the electives: art, music, and, of course, vocational education. Fridley is nearing the endgame in this downward spiral. Soon it will be neither economically feasible nor fair to students for the community to try to maintain the comprehensive curriculum that it has always prized. However, for at least one more year, the high school will continue on its own, doing the best that it can to maintain a full range of courses and opportunities, including some very good vocational classes.

Although there are several two-year vocational sequences and a still-viable cooperative work experience program, the philosophy of vocational education espoused in Fridley is essentially exploratory. Many students enroll in vocational courses and sequences with personal use rather than

career goals in mind. A large proportion of them will go on for further education and training immediately after graduation, and others are likely to do so eventually. Whatever their motivations, there is no doubt that the students who enroll value and enjoy the hands-on, applied skills that they learn in their vocational classes. For some, it is a relaxing antidote to the more academic part of their school day. For others, such as the students who spend extra hours in the drafting room exploring CAD programs, it is the most intellectually stimulating portion of the day. Either way, Fridley is not likely to abandon secondary vocational options for its students, even if the high school must consolidate with its neighbors in order to maintain a viable program.

# IV. VOCATIONAL EDUCATION IN A SCHOOL-WITHIN-A-SCHOOL

The "school-within-a-school" structure has been effectively employed for multiple purposes in districts across the country. Its primary value as a structure lies in its ability to personalize education and reduce the effects of anonymity that often alienate some students in a large high school. The School District of Philadelphia has made a significant commitment to this approach in the delivery of vocational education through its High School Academies. The Academies have experienced impressive success in keeping at-risk students in school as well as improving their post-school outcomes. In some ways similar to the career specialty magnet programs that have been implemented in Milwaukee high schools, the Academies are small schools nested in large comprehensive high schools. Vocational components of the program are carefully integrated with academic courses. Academy students are "block rostered," which means that they take their courses together and are taught by a small number of teachers who remain with them over their high school years. The individual Academies, two of which are described in this volume, place great emphasis on a partnership between the schools and the private sector to ensure that the instructional programs offered to students will provide the foundations they need for postsecondary training and viable careers in the Philadelphia labor market.

# THE HIGH SCHOOL ACADEMIES PROGRAM
Philadelphia, Pennsylvania

Nancy E. Adelman

## I. Overview

The room is decorated with posters of Spain and student-made restaurant menus offering delicacies from Spanish-speaking countries. Twenty-two students are attentive as the teacher fires off questions in rapid Spanish. For the benefit of her two non-Spanish speaking visitors, she inserts enough English to indicate the situation to which the students in Spanish II are responding: a medical professional is reviewing a patient's symptoms. "Yo siento mal." "Me duele la cabeza." "Me duele el estomego." "Me duele la gartanta." "Me duele mi cuerpo." Before they graduate from high school, these students will complete four years of Spanish instruction. They are on a college-bound track within a vocational education program in the Philadelphia public schools--the Philadelphia Health Academy.

The High School Academies Program began in 1969 with the creation of the Academy of Applied Electrical Science. Today 10 academies enroll over 1,300 students in four vocational or career areas: business, health, automotive and mechanical sciences, and electrical science. It is no accident that "science" is used in two academy titles. A major instructional goal of each academy is to strengthen and make explicit to students the link between traditional academic coursework and various career paths.

Most frequently described as a "partnership" between local business and industry, community organizations, and the school district, the academy concept in Philadelphia relies on the active support of the private sector for financing, training placements, and jobs. Recognition for the program includes a Private Sector Initiative Commendation from the President of the United States and a statement by Public/Private Ventures[1] that the academies program is "the best single model in the country for business involvement in the schools."

Now in its eighteenth year of operation, the academies program has grown and changed with the city and its environs. Like other "Rust Belt" cities, Philadelphia has worked to replace its outmoded manufacturing base with new technological and service industries, including computers, health care, pharmaceuticals, education, banking, real estate, insurance, and direct mail. While many jobs are now in the suburbs, there are, nevertheless, jobs for individuals with the proper training and education. The Academies are working to help inner-city youth participate in the region's economic upswing.

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[1]Public/Private Ventures is a national, nonprofit corporation that designs, manages, and evaluates social policy initiatives designed to assist individuals to become productive members of the workforce.

History

The establishment of the Academy of Applied Electrical Science was a proactive response to an acute problem. Like other major cities, the violence that erupted in the spring and summer of 1968 forced Philadelphia to confront its education and employment deficiencies. Out of the riots emerged the Philadelphia Urban Coalition, which had as one of its charter goals the development of career-oriented programs for disadvantaged students in inner-city high schools.

In 1969, Edison High School had achieved a dubious distinction among its sister schools: the lowest attendance rate and the highest dropout rate of any comprehensive secondary school in the city. Under the auspices of the Urban Coalition, representatives from the school district, the Bell Telephone Company, the Philadelphia Electric Company (PECO), and other local businesses associated with the electrical, electronics, and communications industries brainstormed a new approach for capturing and sustaining the interest of disaffected youth in completing their high school education. With the cooperation of Edison's administration and faculty, the group proposed to field test their ideas in one of the most challenging settings the school system had to offer.

Philosophy/Mission/Goals

If the Philadelphia business community had simply contributed its ideas, blessings, and even money to the venture at Edison High School, in all likelihood there would be no story to tell today. In addition to intellectual, moral, and financial support, business loaned the program full-time, experienced executives to share leadership and management responsibility with the school's administrators and teachers. PECO's Hendrik B. Koning assumed a lead role in the second year of the Academy's operations and, to this day, remains "on loan" to the program, currently as executive director of the Philadelphia High School Academies Association. The LEA counterpart to Mr. Konig is Mrs. Barbara Goldsmith, a research associate who reports to the school system's Executive Director for Career and Vocational Education. These parallel positions are critical to sustaining the private sector/school district partnership that is a hallmark of the Academies program.

The academies were founded on the philosophy that you cannot motivate and instill the work ethic in reluctant students without providing (1) the opportunity for real and remunerative work and (2) an educational atmosphere that is personal but structured. The model that has put this philosophy into operation has the following characteristics:

- a school-within-a-school organizational structure that gives a clear sense of program identity within the comprehensive high school
- integration of academic and vocational instruction through team teaching and career-specific curriculum materials

- "block rostering," a scheduling approach that keeps academy students together through all or most of the school day
- clearly defined rules that are understood by students, parents, and school
- assurance of part-time paid work experience during the school year and full-time jobs in the summer for all eleventh and twelfth graders.

The academy program grew slowly but steadily throughout the 1970s. (See Table 1.) A second academy--the Philadelphia Business Academy--was inaugurated at University High School in 1972 and expanded to South Philadelphia High School in 1976. A third--the Academy of Applied Automotive and Mechanical Science--began at West Philadelphia High School in 1974. Following a period of consolidation, the program came under a new administrative structure and entered a new phase of expansion in the 1980s, adding health professions academies in two schools, three more business academies, and a second electrical academy.

Total enrollment in all the academies during school year 1986-87 is about 1,350 students. Superintendent Constance Clayton has challenged the program's private sector partners to develop resources for serving 5,000 students in the near future.

Table 1

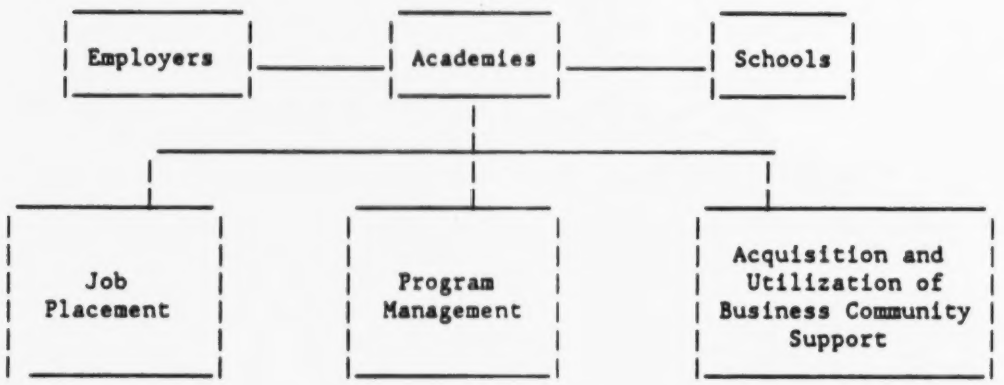
The Growth of the Academies

| Academy | Year Established | Enrollment |
|---|---|---|
| Automotive & Mechanical Science | | 155 |
| West Philadelphia High School | 1974 | |
| Business Academy | | 722 |
| University City High School | 1973 | |
| So. Philadelphia High School | 1976 | |
| William Penn High School | 1982 | |
| Strawberry Mansion High School | 1985 | |
| Roxborough High School | 1987 | |
| Applied Electrical Science | | 208 |
| Thomas Edison High School | 1969 | |
| John Bartram High School | [1988] | |
| Health Academy | | 262 |
| Martin Luther King High School | 1982 | |
| Overbrook High School | 1985 | |

Business and Industry

Community involvement is an integral part of the academy concept. From the outset, business developed the model; contributed personnel, money, and job placements for its implementation; and served in voluntary advisory roles. The governance and finance structure for the academies reflects the strong private sector involvement that is the program's hallmark. (See organizational chart below.)

Philadelphia High School Academies Program
The Link Between Employers and Schools




The Philadelphia High School Academies Association (PHSAA) is responsible for long-range planning and expansion of the program and general oversight of its activities. In addition to Mr. Koning, the executive director of the PHSAA, the Association employs several other staff, who are supported with private sector or PECO money and housed by the Philadelphia Electric Company. The senior partner of a prominent law firm serves as the Association's part-time, volunteer director of development. Membership on the PHSAA board includes senior executives from the private sector, the superintendent of schools, the school district's director of career and vocational education and other school administrators, and the chairman and executive director of the four academy programs.

Boards of the separate programs are composed of upper- and middle-level executives from key supporting businesses or organizations, the school system's Executive Director of Career and Vocational Education, the Research Associate who is the LEA liaison, and other school district personnel. Their responsibilities are similar to those of the overall PHSAA board but focus on program development and improvement in a single career area, including the development of personnel policies.

When a new academy site is contemplated, representatives from appropriate sectors of business and industry form a search committee. Since the academies are popular supplements to a school's basic offerings, there are usually several school site applicants. The committee looks for several key institutional characteristics that have proven to be indicators of successful sites over the program's history. Absolutely critical is the principal's commitment to the essential ingredient of the academy program: creation of a school-within-a-school through block scheduling that keeps academy students together as much as possible over four years of high school. This is not a trivial commitment. In a large high school, scheduling is a science; a program that breaks with well-established patterns is a major headache.

With the exception of the Health Academy, each academy has an executive director, whose time and/or salary is contributed by private sector supporters. The executive director and the school district's full-time academies liaison (Research Associate) form the program's day-to-day management team. Only the Business Academy, which has programs in five high schools, currently has (or needs) a full-time executive director, as well as two full-time placement specialists. Executive directors of the other three academies are released one day per week by their employers to take care of academy affairs.

Some private sector leaders recently raised questions about the management efficiency of the academies' governance structure. They expressed several concerns--the expense of supporting five executive directors (PHSAA and the four academies), high per student costs, and the fact that the individual academies were beginning to trip over each other as they sought to line up sources of funding and jobs. Two consultants assessed the situation and recommended consolidation into a single organization. The PHSAA board of directors has approved this concept in principle and is testing the waters for change among the larger community of business participants.

For every company with a seat on one or more of the Academy Program's boards of directors, there are dozens of other small, medium, and large businesses that participate through the "work stations" and monetary contributions that they volunteer. In 1986, over 500 firms employed academy students, either after school or during the summer.

Financial Support

In 1985-86, the private sector spent approximately $800,000 to operate 10 academies, as shown in Table 2.

These figures include the private sector funds needed for program operations, above and beyond normal school district support for faculty salaries, facilities, etc. (The districtwide per pupil expenditure in Philadelphia is about $2,800.) Additional costs associated with supporting the academies include: (1) two extra teachers per site to accommodate block scheduling and a longer school day; (2) materials and supplies; (3) renovation costs; (4) purchase of state-of-the-art equipment; and (5) bus rentals for trips that are a standard part of the various academy curricula. The

PHSAA and the executive directors of the four academies raise these amounts each year. As the program has grown, so has the need for corporate donations, making fund raising a constant activity that requires considerable persuasiveness, persistence, and occasional bullying.

Table 2

Budget and Per Pupil Costs of the Academies

| | Total Operating Budget | Per Pupil Costs |
|---|---|---|
| Business Academy (5 sites) | $212,000 | $294 |
| Applied Electrical Science Academy (2 sites) | $141,000 | $678 |
| Automotive and Mechanical Science Academy (1 site) | $111,200 | $717 |
| Health Academy (2 sites) | $ 70,300 | $268 |
| PHSAA | $250,000 | -- |

Unions

The Health Academy, founded in 1982, is the first of the four academies in which organized labor played a key developmental role. Its original executive director was loaned by the Training and Upgrading Fund of the National Union of Hospital Workers and Health Care Employees. The union continues to be active in promoting and supporting the academy's goals.

The Philadelphia school system is an exceptionally strong affiliate of the American Federation of Teachers. The teachers' union is represented on each academy's board and has consistently supported the academy program. This support is essential since the union contract could potentially be a roadblock to features of the academy model, such as involvement of business and industry in teacher selection, extra work loads, and a longer school day.

Parents

In recent years, the academies program has increased its attention to parent involvement. The Business Academy, for example, regularly mails newsletters and student evaluation reports to parents.

Most parents and families of academy students are not traditionally school boosters. Many students come from single-parent homes, a large proportion of which receive welfare. Academy staff work hard to gain parental participation in the program, even to the point of offering token rewards for coming to meetings and other events. For example, at one Business Academy where 80 percent of the students are from welfare families, the promise of a free T-shirt with an academy logo to each student accompanied

by a parent or other "significant" adult resulted in 100 percent attendance at the fall Orientation Night. Pennants, sweatshirts, and jackets have served the same purpose in other programs. According to the district's Academy Liaison, it is not unusual for parents to inquire about the possibility of enrolling in an academy themselves--an indicator of both the need for and success of the program.

## III. District Structure of Vocational Education

The academies program has always been a school-business partnership, but the structure of that relationship has changed over the years. The original impetus and vision came from the private sector. Although the relationship between the partners has always been overtly cordial, the initial gesture by business and industry was at least implicitly critical of the school district's capacity to retain, motivate, and train disaffected youth.

While individual schools lobbied to host new academies, growth was slow through the 1970s. One impediment to expansion was the lack of a clearly designated liaison in the central school district administration to oversee and facilitate the considerable negotiation, arbitration, and decisionmaking involved in setting up new sites.

Under new leadership in 1982, the school district signalled its commitment to the growth of the academies program by creating a liaison position. The liaison is housed in the Division of Career and Vocational Education of the Philadelphia Public Schools. Her salary is paid from general operating funds. In collaboration with the executive directors for the four career areas, the liaison is responsible for the day-to-day functioning of the program. Operationally, this structure means a daunting array of responsibilities: advocacy for the program both inside and outside the school administration, new program development, improvement of existing academies, identification and resolution of problems, troubleshooting, and quality control. The liaison is an ex officio member of the boards of directors for the four academies and the PHSAA.

Individuals who have had contact with the academies program for many years believe that the creation of the liaison position came at a critical juncture. As one executive director put it, "Before there was a liaison, it was difficult for us [the private sector partners] to get entry into the school district. We had no participation in the selection of teachers for the program and no one to help us fight battles, such as including ninth grade in our plans." Now, the liaison is empowered to broker resources and mediate compromises, with the result that five new academies have opened their doors in the past five years.

## IV. The Vocational Education Programs

Because the Academies Program is a model, many features are held constant across the 10 operating sites. All are "schools-within-a-school,"

which means that they function as identifiable and, to some extent, isolated programs within inner-city comprehensive high schools. All encourage greater than average coordination between the academic and vocational or career aspects of the curriculum. This integration is referred to as "infusion" and is a two-way street, depending on the particular academy in question: the academic may be infused into the vocational (as in the Business Academies) or the vocational may be infused into the academic (as in the Health Academies). In addition, all the academies also (1) limit enrollment, (2) employ "block rostering" (a scheduling format that moves academy students through the school day as a group) as much as possible, (3) guarantee work experience to all students in good standing who desire a job, and (4) have a standard organizational structure that includes an executive director, a lead teacher, and a teaching team.

The Business Academy and the Health Academy are described in the following sections.

## The Philadelphia Business Academy

As of the 1986-87 school year, the Philadelphia Business Academy is firmly established in five high schools, each in a different administrative district of the school system.[2] The demographics of the five settings differ substantially. University City High School, the oldest Business Academy site, is in West Philadelphia near the demolished block that once was MOVE headquarters. South Philadelphia High School (65 percent black and in transition) and William Penn High School are at opposite ends of the central city thoroughfare known as Broad Street. Strawberry Mansion High School, a small combination junior/senior high school that abuts the east side of Fairmount Park, serves a housing project where approximately 80 percent of the families receive AFDC payments. The newest Business Academy, in Roxborough High School, is situated outside the downtown area and principally serves the children of white, blue collar workers. Information about the Business Academies is based on interviews with the program's administrative staff.

Originally designed as a program for tenth, eleventh, and twelfth graders, the Business Academy has gradually encompassed ninth grade, as Philadelphia's high schools adapted their grade structures to changing enrollments. The four-year curriculum appears in Table 3. Like all high school students in Philadelphia, participants in the Business Academy must take four years of English, three of mathematics, three of science, and three of social studies. Other requirements include arts and humanities and physical education/health.

In order to qualify for state vocational education reimbursement, a program must demonstrate that students are enrolled in three hours of

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[2]Like most large urban school districts, Philadelphia's administrative infrastructure includes the central office and seven geographically based, middle management offices. It is the Business Academy's intention to support a Business Academy site in each of the district's seven administrative regions in the near future.

vocational education daily. Beginning in tenth grade, Business Academy students meet this requirement through a combination of vocational skills courses and business math or English courses that also carry academic credit. The sixth and seventh periods in the senior year are reserved for work release time.

The basic vocational business course sequence offered in the Business Academy is similar to a business concentration in high schools all over America: Introduction to Business, Typing I, II, and III, Clerical Practices I and II, Stenography I and II (perhaps on its way out of the curriculum), Word Processing, Office Practices, and Accounting I and II. The uniqueness of the program lies not in what it offers, but in how it is organized. Because teachers assigned to an Academy program work as a team, the topics studied in the different subject areas can be more closely coordinated and key educational objectives consistently reinforced across the curriculum. Because students are block rostered and work with a limited number of teachers over a four-year period, peer and faculty support systems combine to help students make it through. In short, structure, not content, is the key variable in the program's success.

Table 3

Philadelphia Business Academy
Four Year Curriculum

| Period | 9th | 10th | 11th | 12th |
|---|---|---|---|---|
| 1 | English | English | English | *Business English |
| 2 | Mathematics | *Business Mathematics | Mathematics | Social Studies |
| 3 | Science | Science | Science | 1/2 Phys. Ed.<br>1/2 Arts/Humanities |
| 4 | Social Studies | Social Studies | *Typing II | *Typing III or<br>*Word Processing or<br>*Office Practices |
| 5 | Arts/ Humanities | *Typing I | *+Accounting I or<br>*Distribution or<br>*Stenography I | *Accounting II or<br>*Distribution or<br>*Stenography II |
| 6 | *Intro. to Business | *Clerical Practices I | *Clerical Practices II | Work Release |
| 7 | 1/2 Phys.Ed.<br>1/2 Arts/ Humanities | 1/2 Phys.Ed<br>1/2 Health | 1/2 Phys.Ed.<br>1/2 Health | Work Release |

NOTES: * indicates Business Course (Chapter 6)
A 6-week unit of Job Search will be incorporated within Clerical Practices II (11th Grade)
+ - Accounting may also be used to satisfy the Mathematics requirement (Chapter 5)

Business Academy administrators are increasingly convinced that, at least in the Philadelphia job market, it makes little sense to distinguish

between business education and distributive education. Available jobs crosscut both areas and call for essentially the same "family of skills." At Roxborough High School, the newest of the Business Academies, an experiment is under way to test the feasibility of combining all business and distributive vocational programs under the academy umbrella. There are, needless to say, political problems. To some extent, the very presence of an academy in a school can be threatening to existing vocational education programs, even when it is serving a small fraction of the total school population. In the Roxborough experiment, an established vocational program--distributive education--is being asked, at least temporarily, to relinquish its identity, not an easy step psychologically.

Work Experience

Classroom work in the Business Academy is supplemented by planned, out-of-school activities at each grade level. Ninth graders, for example, participate in cultural tours of the city--not a directly business-related activity but vocationally relevant for students who may have experienced little of Philadelphia beyond their own neighborhoods and will shortly be required to travel to job placements in other sections of the city. Tenth graders are taken on three "company tours" in groups of 10 to 15. The tours are intended as an overview of the different types of work and environments found in a large business. The third tour of the year--an introduction to the court system in action--actually has several agendas: information on employment possibilities within the judicial system, a link to the social studies program, and an opportunity to caution students about ending up on the wrong side of the bench.

Serious, personalized orientation to the world of work and job placement begins in eleventh grade with company visits. In groups of three, students spend a morning at a business going through all the steps involved in the job application process, including skills tests. Each student participates in a one-on-one discussion with an employee (who may be a Business Academy graduate). At the conclusion of the visit, the students are treated to lunch by the employer, a gesture intended to indicate interest, support, and encouragement.

Twelfth graders are exposed to practice job interviews. They are expected to have a resume and to conduct themselves as they would if actually applying for a position. The practice interview is designed to help the student polish his or her job search skills, but it serves as a source of data for program assessment as well. Interviewers complete a Practice Job Interview Evaluation Form, supplied by the Business Academy, and return it to the academy's central office for review and analysis. Individual students receive counseling based on their evaluations. From the aggregated data on 1986 student evaluations, the executive director of the Business Academy determined that greater emphasis was needed on written communication and on skills that may appear on entry level employment tests.

Thus, the Business Academy systematically prepares its students for successful employment through instruction in four areas: (1) basic skills, (2) technical skills, (3) employability skills, and (4) career exploration. Like all students, Business Academy participants are graded on their performance in academic and vocational courses. However, they are also rated on

qualities such as accepting and following directions, interpersonal skills, enthusiasm, and appearance. Attendance and punctuality at school are carefully monitored. The reward for adequate performance in all these areas is a guaranteed work station after school in the eleventh and twelfth grades and in the summer for ninth, tenth, and eleventh graders.

Assignment to a work station is by no means a certainty for all students enrolled in the Business Academy program. There are standards to be met. However, the standards are not as rigorous as in the more strictly academic Health Academy, where low achievement results in academic probation and no work placement. That strategy would not succeed in the Business Academy, which serves a lower achieving, less academically motivated clientele. As the executive director pointed out, "The work experience is really a way of keeping kids in school." Students with marginal academic records are eligible for placements, in the hope that a positive work experience will influence their overall attitude toward school. Once placed, continuation in the work station depends on the student. Abuses of the placement (e.g., tardiness, absenteeism, attitude problems) are not tolerated for long.

While program administrators take responsibility for developing and matching students with jobs (with the help of two full-time placement specialists/counselors), the individual student is responsible for presenting him or herself at the intake interview, where duties and expectations are explained. At a school like Strawberry Mansion, with its high proportion of students from families with little knowledge of business protocol, teaching appropriate job behaviors is a painstaking, step-by-step process. Many students have had to learn the hard way that if you don't show up for an interview, you don't get a job. The Business Academy considers this type of situation a challenge; in time, and with all the support and resources that the program can bring to bear, it is assumed that Strawberry Mansion students will have the same high placement rate as students in the other Academies.

Developing and maintaining work stations for large numbers of students require hard work and constant monitoring. The academies generally, but especially the Business Academy because of its larger enrollment, are constantly following up on job placement possibilities throughout the central city and in the metropolitan area. One of the arguments for combining business and distributive education into one academy at Roxborough High School concerns the problem of multiple programs dunning the same employers for student placements. In the search for placements, the Business Academy has a slight edge because of a Private Industry Council (PIC) contract that enables the program to reimburse employers of some disadvantaged seniors for 50 percent of wages paid.[3] However, only about one-sixth of the students to be placed qualify under contract guidelines. Last year, reimbursement funds accounted for only $5,000 of the approximately $200,000 in wages earned by Business Academy students.

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[3]Funds for these partially subsidized placements come from the Neighborhood Assistance Act. The Academies Program is eligible to receive them because of its nonprofit status.

Extracurricular Activities

One of the core objectives of all the academies is raising students' self-esteem. The theory is that half the battle is won when students become convinced that the goals the program sets for them are really achievable. The Business Academy employs several strategies to meet this objective. First, each site produces its own newsletter, which features student accomplishments of all kinds--job placements, attendance, academic excellence. Each school also sponsors a Philadelphia Business Academy Gold Star Club. Co-sponsored by the lead teacher and a placement coordinator from the Academy's central office, the Gold Star Club meets monthly to recognize outstanding members, hold discussion groups, or hear speakers. All students are eligible to become probationary members of the club when they are placed in a job. Two months of satisfactory job performance lead to full membership; three months of excellence on the job and in the classroom qualify the student as a Star Performer and earn him or her a blazer.

At the end of every school year, the Business Academy students citywide join forces to host a luncheon for the teachers, school administrators, and members of the business community who support the program. In June 1986, this popular event drew 450 people to a local restaurant. Academy administrators intend the luncheon to teach students the value of recognizing and thanking the many people who have motivated them to make something of their high school experience. It is also an opportunity to honor outstanding student accomplishments.

Outcomes

The Business Academy is understandably proud of its statistics regarding attendance, graduation rate, and post-graduation status. Philadelphia school officials claim an official districtwide dropout rate of 9.8 percent per year, which may underestimate the actual rate. However, it is still nearly nine times higher than the academies' one percent dropout rate.

Average daily attendance (ADA) across all 10 Academies and for the five Business Academy sites is 90 percent. For all Philadelphia secondary schools, the ADA is 67 percent. The academy's graduation rates also far outstrip citywide outcomes: 91 percent for all Academy sites; 95 percent for the Business Academy sites; 77 percent for all Philadelphia high schools.

The Business Academy does a follow-up on its graduates one year after graduation. For the class of 1984, the survey found that 86 percent were either employed or attending postsecondary institutions; the comparable figure for the class of 1985 was 87 percent. A somewhat more detailed analysis of post-high school outcomes for the class of 1986 shows that, of the 117 students in the senior class, 50 (43 percent) are employed and 29 (25 percent) are attending a postsecondary institution. Only nine students are unemployed, while 13 are repeating the twelfth grade and 10 are either unavailable for work or unable to be contacted. Comparison follow-up data on Philadelphia's entire class of 1986 are not available. However, the nine unemployed Business Academy graduates yield an unemployment rate of eight

percent, a striking contrast to the 1985 national unemployment rate of 19 percent for all 16-19 year-olds and 40 percent for black youth in that age range.[4]

The Business Academy program is able to conduct follow-up on its graduates in part because it maintains an on-line data bank on all of its students--past and present. Each student record contains home address and telephone and, for graduates, the last known employer. More to the point, dependent as it is on private sector support, there are strong incentives for the program to maintain current and cumulative evidence of success, for both marketing and accountability purposes. Finally, there is the very significant fact that this is a highly personalized program; follow-up surveys satisfy a desire to know how real people are getting along, not merely a need for statistical data.

The Philadelphia Health Academy

The health field is the newest of the career areas targeted by the Philadelphia academies program. Philadelphia, with its many medical schools, hospitals, allied health programs, and dozens of related industries, is a hub for the health professions. The first Health Academy site was established at Martin Luther King High School in 1982-83; a second opened at Overbrook High School in 1985-86. In November 1986, 262 students were enrolled at the two sites. One class of 17 students has graduated from the M. L. King Health Academy; a second class of approximately 30 will graduate this year.

The Health Academy profile is based on general information about the program and on a site visit to the academy at Overbrook High School, now completing its second year of operation. Overbrook is located in a run-down but viable section of West Philadelphia. The school, built in the 1930s, enrolls approximately 2,000 students, excluding special education classes. It employs 130 certified teachers and a total of 175 staff. Upwards of 50 percent of the student body is enrolled in a bevy of specially designated programs designed to retain the neighborhood's more successful students and to attract a clientele from throughout the city.

Three years ago, Overbrook began to seek an academy to add to its drawing power. Overbrook's principal actively lobbied for an academy and, having pledged the whole school's support for the program, is working closely with the Health Academy executive director and the lead teacher to launch a strong, credible effort. As in most of Philadelphia's comprehensive high schools, vocational education at Overbrook is practically extinct because of the state's Chapter 6 statute, which requires students to enroll in three hours of vocational programming per day in order to qualify for vocational funding. The single traditional vocational program that has survived at Overbrook is business education, although there are some three-period shops for special education students. Overbrook's principal would like to create an Automotive and Mechanical Science Academy site in the near

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[4]Comparison statistics are drawn from Statistical Abstract of the United States, 1987.

future to fill the void in Trades and Industry options for the average student.

Academic Program

The Health Academy targets a different type of student and offers a substantially different type of program from those of the other academies. Admission to the health programs is selective. In school year 1986-87, about 240 students applied for 120 places in the combined entering classes for the two Health Academy sites. The program deliberately accepts more than the number of students it can actually accommodate, since many students apply to more than one special program and may not actually enroll. Faculty and health professionals interview prospective candidates, looking for a combination of at least average academic achievement, good attendance, and high motivation.

The Health Academy curriculum is essentially a college preparatory course that in many ways is more rigorous than the typical program followed by students in an academic track. (See Table 4.) Students take four years of English, math, science, and foreign language, and three years of social studies. By the time the school district's requirements in humanities, physical education, and health are factored in, the schedule allows one additional elective credit each year, which the program reserves for support courses such as study skills, typing, and an SAT prep course.

Table 4

Health Academy Curriculum
Overbrook High School

| Department | 9th | 10th | 11th | 12th |
|---|---|---|---|---|
| English | English I | English II | English III | English IV |
| Foreign Lang. | Spanish I | Spanish II | Spanish III | Spanish IV |
| Math | Algebra I | Geometry | Algebra II | Elem.Functions |
| Science | Biology | Chemistry | Psychology | Physics |
| Social Studies | World Hist. | --- | Amer.Hist. | Soc.Science |
| Physical Ed. | Phys.Ed./ Humanities | Phys.Ed./ Health | Phys.Ed./ Health | Phys.Ed./ Humanities |
| Electives | Study Skills | Typing Computer Skills | Scholastic Aptitude Test Prep | Elective |

In contrast to the Business Academy, the Health Academy curriculum contains no overtly "vocational" courses,[5] nor does it receive state vocational funds for its operation. Despite its inclusion under the essentially vocational Academies' umbrella, it is better described as a career-related program. No specifically vocational skills are taught, but vocational concepts and applications are integrated, or "infused," into the core academic subjects. Thus, English classes may emphasize medically related vocabulary, the relevance of the various sciences to particular professions is stressed, and Spanish is taught using a text subtitled Basic Spanish for Medical Professions. In a chemistry lab, for example, tenth graders were engaged in a lesson on anhydrides, or how to make acid rain. These students have a double lab period every week for a school year, considerably more hands-on science time than the average high school chemistry student experiences. The regularity of the labs is facilitated by the presence of a chemistry aide/lab assistant who prepares experiments and performs demonstrations.

Not surprisingly, students find this curriculum difficult. At Overbrook High School, which currently enrolls about 100 Health Academy students in the ninth and tenth grades, fewer than 10 students were on the official school Honor Roll (requiring all A's and B's) during the fall semester. The majority of students are on academic probation, a designation that applies when a student has two D's or one F during a given grading period. (There is also a condition known as disciplinary probation that is invoked far less frequently, since most Health Academy students are, generally speaking, not behavior problems.)

The foreign language requirement has posed a particular problem for students. Its inclusion in the curriculum is based on data from Philadelphia's extensive medical community concerning shortages of qualified personnel of all types who can communicate with the city's language minorities. Fluency (or at least familiarity) with Spanish will presumably give Health Academy graduates an edge over other contenders for future jobs. At Overbrook, several students failed Spanish I during the program's first year. Because the total curriculum is so tightly woven, making up credits is difficult. Prior to the summer of 1987, school district policy required that students fail two courses before they were eligible for free summer school sessions. Most academy students failing Spanish did not qualify. The less-than-satisfactory alternative was to place the tenth grade Spanish I repeaters in non-Academy sections of the course, thus breaking up the block rostering that the program tries to maintain. This situation is expected to improve with the repeal of the two-failure policy.

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[5]Philadelphia's Area Vocational-Technical Schools (AVTS) offer health-related programs, but they are significantly different from the Health Academy. At an AVTS, students receive credit hours for training in activities ranging from making hospital corners on bedsheets to performing laboratory tests. Some AVTS students go on for the postsecondary training that will allow them to move into upwardly mobile health careers; most do not. In contrast, the Health Academy's goal is to place all its graduates in postsecondary education or training.

To help students make the transition from junior high to a demanding academic program, the Health Academy requires a ninth grade course in study skills. In truth, such a class would probably benefit all freshmen. In the half hour that we spent in a study skills section, an extremely competent instructor used what was essentially a health-related reading comprehension exercise to teach some math (simple descriptive statistics), some geography (the location of the various U.S. military academies), and a basic lesson in epidemiology. His lesson reflected the academy theme, but he took advantage of every opportunity to broaden the general knowledge and culture base of the 12 students sitting in the semicircle. If he has anything to say about it, these students will be liberally, not narrowly, educated.

Work Experience

Health Academy students are not offered afterschool work experiences that would sidetrack them from the serious business of homework. Students entering tenth, eleventh, and twelfth grades who are not on academic probation are eligible for placement in summer jobs. In 1985, 32 students from the Martin Luther King Health Academy site took advantage of this option. There is a "pecking order" for placements, with the highest achievers earning first choice among the available jobs. About half (25 students) of Overbrook's first entering class wanted summer employment between their freshman and sophomore years. Others preferred to pursue different summer alternatives such as the PRIME program (pre-engineering focus) or opportunities available through the American Federation of Negro Affairs (AFNA).

Although the Health Academy limits actual paid work experience for its students during the school year, it provides many opportunities for exploration of health-related careers, beginning with an academic summer program for entering freshmen at the Osteopathic Medical Center of Philadelphia. This program, which also involves some students from the Business Academy, is funded through the Mayor's Summer Youth Program. Students take courses in math, English, physical science, and career development. Career-related activities include an introduction to job application skills, overviews of health fields by guest lecturers, and an introduction to osteopathic medicine.

Throughout the school year, relevant field trips are a regular part of the Health Academy curriculum. During 1986-87, for example, Overbrook Health Academy students visited the Philadelphia College of Pharmacy, a senior citizen center, a health fair, and Albert Einstein Hospital. In addition to the trips, speakers are regularly brought in to discuss issues ranging from mental health to nutrition to sex equity. Some students (and teachers, too!) have had the opportunity of "shadowing" a health care professional on the job. Health Academy board members often volunteer to introduce students to some aspect of the health field through these shadowing experiences.

How much do students benefit from these career-related experiences? In a ninth grade study skills class, we observed a teacher orally quizzing students on an assigned newspaper article headlined "Military Revises Policy on AIDS." Asked "Which three steps are recommended as a means of avoiding AIDS?" the group immediately responded with the three measures named in the

article but added five or six other suggestions drawn from a recent lecture on sexuality and choice. The teacher straightforwardly admitted that the class had taught him some things he didn't know.

In many ways, the career-related activities of the Health Academy are proxies for the job experience provided by the other academies. Basically, program administrators and faculty try to sustain student motivation to complete a difficult program of studies by shaking the carrot at the end of the stick. "If you stay with it," they say, "if you try your hardest, many lucrative and satisfying careers will be open to you." Since teenagers are not known for taking a long-range view, the program builds in monthly stimuli to keep aspirations up.

Extracurricular Activities

Like the other academies, the Health Academy looks for every opportunity to highlight student accomplishments. At Overbrook High School, making the official school honor role requires a report card with A's and B's in all major subjects, a difficult task for academy students. The academy parent newsletter, therefore, recognizes other categories of excellence: students with a B average (allowing for the occasional C), perfect attendance, and contest winners, for example.

The Health Academy, following in the footsteps of its predecessors, has instituted the tradition of a graduation luncheon. Parents, teachers, administrators, and representatives of the health care industry come together to honor the graduates and, in turn, receive the students' appreciation for their support.

There are no special clubs associated with the Health Academy. Officially, students are welcomed into and encouraged to participate in the extracurricular life of Overbrook High School. Although the academy students have a separate academic life within this large comprehensive high school, their status is not particularly unusual in an institution that for 18 years has housed a selective Scholars Program and magnet programs in art and music. The principal makes it clear that Overbrook and all its activities are the joint property of both the students who are assigned there by residence and those who choose to be there for special programs.

Outcomes

Both the Martin Luther King and Overbrook Health academy sites are too new to have data on long-term outcomes for students. Of the 17 students in King's first graduating class, 12 are attending postsecondary institutions, four are in the military, and one is enrolled in a trade school.

Attendance levels have been high at both Health Academy sites--96 percent in November 1986. The academies liaison points out that, while the overall academy attendance rate of about 90 percent is excellent in comparison with the citywide figure of 67 percent, percentages are deceiving. With 180 days in a school year, a 10 percent average absence rate means 18 days when a student is not "on the job"--unacceptable performance in the business world.

## V. The Teachers

### Background and Training

The creation of a special learning environment within a larger educational institution has implications for faculty as well as students. Although they may not devote their entire day to teaching academy students, teachers involved with the program become "academy teachers." It is a commitment requiring extra time and, more importantly, a belief that the premises on which the program is founded can make a difference in students' lives. Consequently, attachment to an academy does not appeal to all.

Identification of appropriate staff is essential to an academy's success. When a new academy is starting up, a flyer is circulated among the staff of the host high school to advertise the positions available. Interested candidates are interviewed by a team that includes representatives from the business community and school district administrators. In addition to subject matter expertise, key selection criteria are (1) the ability to work with others as part of a team, (2) exceptional interpersonal skills, (3) ability to relate to students in multiple capacities (e.g., role model, counselor, motivator, teacher), (4) flexibility and openness to change, and (5) seniority (a selection factor that encompasses both a desire for highly experienced teachers and union rules giving veteran teachers some priority when desirable teaching slots open up).

In most academies, the staff includes both academic and vocational teachers who will subsequently work as a team to infuse core requirements into the vocational program. Thus, the Automotive and Mechanical Science Academy has four vocational teachers, the Applied Electrical Science Academy has three, and the various Business Academy sites average five vocational instructors. These individuals work in concert with one or more teachers from the English, mathematics, social studies, and science departments. Sometimes, it is possible to find an interested teacher with multiple credentials--for example, math and business--whose own training naturally bridges the curricular gap that the academies seek to close. The Health Academy sites, with no vocational teachers on staff, are the exception to this staffing model. Health Academy personnel form an interdisciplinary academic team, who look for ways to emphasize health topics within the college track curriculum.

Until about five years ago, staff training and development were largely informal and ad hoc throughout the academies. The policy decision to systematically promote and expand the program suggested that more formal, written procedures would shortly be needed. The academies program would no longer be a small business. School and business leaders obtained foundation funding to support development of standardized orientation and training materials that would be used in Philadelphia as well as disseminated to other communities seeking to replicate the model. The guides, prepared by the Philadelphia-based research company Research for Better Schools, stress processes rather than specific content, since each academy must plan for the needs of students with varying backgrounds, abilities, interests, and motivations.

On average, the professional teaching team at an academy meets once a week for planning, discussion, and troubleshooting. The executive director of each academy and the district-level academies liaison periodically attend these meetings, particularly if a significant problem is on the agenda. In addition, 40 hours of "official" staff development activities are budgeted each year. These sessions are intended for the business sponsors as well as the school-based staff and serve to reinforce the partnership concept that forms the core of the model.

Teacher Characteristics

Who works for the academies? This is a more appropriate question than "Who teaches in the academies?" The somewhat odd combination of a complex infrastructure and a resolve to maintain a family-like intimacy among the separate parts means that many adults directly touch students' lives.

Teachers, of course, do have the most extensive contact with students on a daily basis. Their motivations for wanting to teach in an academy vary. One teacher told us that she is intrigued by the idea of closely following the progress of one group of students for four years--very different from the usual waves of new faces that roll by teachers annually. "It's a unique opportunity to see if you really make a difference for a kid," she said. Another teacher cited the family atmosphere and the chance to interact more frequently with colleagues. A third had been happily involved in a foundation-funded allied health program in the mid-seventies and saw the Health Academy as a chance to continue some interests developed earlier.

Since academy teachers are selected from the existing faculty of the host school, they are, by definition, experienced teachers. Many are veterans of 20 or more years in the system. If the match is right, participation in an innovative program such as this one provides a great mid-career boost.

Although schools are eager to attract an academy program, it is sometimes difficult to convince teachers that the extra work and the dedication to a group of students is personally worthwhile. Particularly in a school like Overbrook where several special programs were already in place, there was no initial impetus for teachers to jump on the academy bandwagon. In such cases, administrators are not above a little arm twisting to encourage certain teachers to apply. Once teachers are aboard, however, most quickly become converts to the academy approach to curriculum and instruction.

Each academy has a lead teacher, in effect the teaching principal of the school-within-a-school. The lead teacher is chosen from the teaching team selected for the site. Responsibilities include teaching, coordination, and acting as site liaison with business and industry, with the school district's central administration, and with the academy's board. At the Overbrook High School Health Academy site, the lead teacher is a 20-year veteran of the Philadelphia school system who has received numerous honors for professional excellence. She receives some release time from the school district and some reimbursement from the academy for the extra administra-

tive duties associated with her role. A typical work week for a lead teacher involves two or three periods of teaching per day, two free periods, additional extended hours (reimbursed) for planning, coordinating, and attending meetings, and an uncounted number of nonreimbursed hours to attend evening meetings and generally make sure the job gets done right.

Lead teachers work closely with an academy's executive director. The executive director of the Health Academy is Director of Nursing Education at a major Philadelphia hospital, who is officially released one day per week to tend to academy business. She contributes a good deal more of her own time in order to work in all her academy duties, which include:

- o scheduling board meetings
- o developing agenda materials
- o attending several academy-related meetings per month
- o developing summer work stations for students
- o preparing and administering the budget
- o arranging speakers and field trips.

The full-time executive director of the Business Academy has similar responsibilities on a larger scale. The need to establish and maintain work stations for over 700 students in itself requires the continuous attention of the executive director and two other full-time personnel. The executive director came from the private sector and has held his Academy position for 10 years.

In actuality, all the adults involved with the academy program--from business leaders to the executive director of PHSAA to supervisors of work stations--are personally involved with students and committed to seeing them succeed. Holding high expectations for students and believing that all students can succeed are two of the key precepts of the effective schools research. These ideas have been at the heart of the academy program since its inception, nearly a decade before school effectiveness research came into vogue.

## VI. The Students

Originally, the academy model was exclusively targeted at retaining and training low-income, minority group students. Today, some sites continue to serve this group while others serve a more diverse clientele. However, the academy program generally continues to promote itself as an answer for "at risk" students. The typical Business, Automotive and Mechanical Science, or Applied Electrical Science Academy student scores in the fifth stanine or lower on tests of basic skills and comes from a blue collar or welfare background. Ninety-four percent of all entering academy students are achieving below the 50th percentile in reading or math; 74 percent score below the 24th percentile. Health Academy students are typically higher

achievers, principally from lower middle class homes. Across all academies, but not necessarily within a single academy setting, the program's enrollment is representative of the overall racial composition of the school district.

While the various academies have no doubt encountered their quota of difficult cases, the majority of students are eager to learn whatever it takes to qualify for a good, entry-level job in their field. To some extent, all teenagers are naive about the skills, training, and personal habits required in the workplace. Freshmen entering the Academies may be somewhat more unsophisticated than average. Their instructors find that there is considerable groundwork to be laid before they are ready to venture into the world of work. In some cases, such as the high proportion of Business Academy students at Strawberry Mansion High School who failed to attend their intake interviews, instruction or coaching in employability skills becomes a primary program goal, at least equivalent to and perhaps pre-eminent over basic and vocational skills.

Students are encouraged to set high aspirations. A Business Academy student said, "My goal is to work for a number of different companies and to get a lot of different experiences." Another business student, whose excellent performance in a summer job placement led to continued employment at a bank, hopes to attend college and major in marketing. At least one Automotive Academy graduate has returned to the program as an instructor.

The freshmen and sophomores at Overbrook's Health Academy site have college and, in many cases, graduate or professional school in mind. One girl plans to be a nurse midwife. A group of boys mentioned engineering, sports medicine, and veterinary medicine as career goals. Another girl wants to be "the first doctor in my family." The class realist will only say that she is "exploring the health professions." In fact, some of these aspirations may be unrealistic. The typical ninth or tenth grader cannot really comprehend the long road to complete a medical degree. There is no doubt, however, that participation in the Health Academy has raised these students' expectations and made them (and their families) aware of myriad career possibilities available in their home town. Even if they don't become physicians, the probability that they will continue their education and enter a field with real mobility is high.

## VII. Summary Themes and Indicators of Success

Are the academies exemplary? How does one determine if a program is exemplary or achieving above average success? The usual criteria applied to secondary schools include attendance rates, graduation rates, work experience placements, and post-high school outcomes (in the case of vocational education, post-high school job placements in particular). By all these standards, the Academies are indeed outstanding:

- Attendance averages 90 percent across all academies in a school system where the average ADA is 67 percent.

- Dropout rates are low (2-3 percent) and graduation rates high (97-98 percent).

- The academies have been extraordinarily successful in developing both summer and school year work stations for interested and eligible program participants.

- While no post-high school jobs are guaranteed, follow-up surveys by the individual academies indicate that the vast majority of graduates either continue their education or obtain training-related employment.

There are other indicators of success as well. The fact that the academies program has survived for 20 years represents one vote of confidence. Private sector support could easily have dwindled away once the political heat of the 1960s cooled. Instead, the program maintained a steady, if sometimes low, profile until conditions were right for a resurgence of interest and backing.

The current expansionist mode is another clue to the program's local popularity and the belief in its approach to education and training. Six academy sites have opened since 1980 and the PHSAA director of development is aggressively soliciting support for further expansion. New career themes are being explored in addition to consideration of new settings for the established programs. With present enrollment at about one-fourth of the 5,000 student goal that the superintendent has set, the planners have much work ahead of them.

Why has the Philadelphia High School Academies Program been so successful? A number of reasons emerge. First, there is no doubt that the school-within-a-school concept works--particularly for students who might otherwise become merely names on a roster in a large comprehensive high school. The personal touch, the knowledge of individual problems, the fostering of individual strengths, and the imposition of strict but consistent and fair rules lend structure to lives that are too frequently undisciplined and fragmented.

Second, the promise and delivery of training-related work stations are strong incentives for students who, on their own, would likely look no further than McDonalds. Placements become more valued because they are offered as rewards for adequate or better performance in instructional areas and internalization of the attitudes and behaviors known as employability skills.

Third, the enthusiasm, energy, and commitment that characterize both school district and private sector leadership of the academies program are indispensible to its success. Since its inception, the program has had consistent and unflagging advocates among the top officers and boards of directors of several prominent Philadelphia firms. The more recent creation of the academies liaison position in the district's central office was both necessary and inspired as a symbol of the system's renewed support, under a new superintendent, for the model. Moreover, it is clear that the dedication and organizational skills of an academy's executive director have a tremendous impact on the viability of the enterprise.

Finally, the team approach to curriculum and instruction ensures a far more targeted program of study than the average high school student experiences. The blending and integration of academic and vocational education in the various academy programs initially requires a great deal of work from teachers. However, the effort has visible rewards. Students who might normally reject chemistry or sleep through English class begin to see the relevance of specific learning objectives to particular work place activities. For many teachers, the full impact of the infusion approach is heightened by the opportunity to observe students' learning curves over a three or four-year period. Not every story is a success story, but there are enough to sustain a sense of teaching as a mission and not merely a job.

# V. VOCATIONAL EDUCATION IN A SPECIALTY HIGH SCHOOL

Principally found in larger metropolitan areas, vocational specialty high schools typically provide occupationally specific vocational programs characterized by a scope and sequence that will enable graduates to obtain good entry-level jobs, with viable career advancement potential, directly after graduation. Such schools house both the academic and vocational components of a student's high school program. Some specialty high schools offer vocational programs in several occupations, while others limit their vocational education to one occupational cluster.

Although job placement rates are thought to be the chief indicator of effectiveness for vocational high schools, in many instances postsecondary enrollment rates also tend to be high, as students decide to undertake further education in their chosen fields. This is the case at the Walter Biddle Saul High School of Agriculture Sciences in Philadelphia, which for many years has enjoyed a reputation for sending nearly all its graduates either to good jobs in agriculturally related occupations or to postsecondary institutions for further training or education. The case study of the Saul School describes the types of career and educational opportunities available in a large metropolitan area to students who elect to attend a "farm" school.

WALTER BIDDLE SAUL HIGH SCHOOL OF AGRICULTURAL SCIENCES
Philadelphia, Pennsylvania

Richard N. Apling

## I. Overview

### The Setting

The idea of a vocational agriculture (vo-ag, to the initiated) high school as one of the centerpieces of secondary vocational education in the nation's fourth largest city is intriguing, to say the least. In the minds of most people, vo-ag means farming, and it is difficult to envision how farming fits in with the labor market characteristics, and the vocational education needs, of a city like Philadelphia. Conceived by its founder as a continuation of the "victory gardens" that patriotic Americans cultivated on small urban plots during World War II, the Walter Biddle Saul High School of Agricultural Sciences has been successful enough at training students for a large number of occupational fields that are needed in a city (as well as having provided effective preparation for college) to have "caught on" in other cities.[1]

Saul School is a special selection high school located in a residential neighborhood approximately 10 miles northwest of central Philadelphia. Enrolling 600 students in grades nine through twelve, the school occupies a campus of some 200 acres on both sides of a busy boulevard and is adjacent to Fairmount Park, a large multipurpose recreational area. The main building is a two-story structure housing academic classes, the school office, and the cafeteria/multipurpose room. Behind the main building are classrooms, shops, and greenhouses related to the agricultural program. Across the street are other facilities such as barns for cows and horses, a meat cutting and processing lab, and pens and cages for farm and laboratory animals. Several hundred yards behind these buildings are a stable and training ring for the equine sciences program.

Built in 1957, Saul's facilities are old but well maintained. The grounds are neat, as one would expect at a school offering turf management and landscape design. The interior and exterior of the building have no graffiti. The hallways and classrooms are clean.

The school's viability in its urban location is reflected in the loyalty it has generated over time. One of the school's academic teachers attended Saul as a student; he commented that he liked the school so well that when he later became a teacher, he requested Saul as his first choice of teaching assignments. Another academic teacher attended the school's summer camp as a child, and had selected Saul as her first choice when she was riffed from another school in the district. Further, many parents of

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[1]Milwaukee and Chicago, for example, have established vocational agricultural high schools within their school systems in recent years.

former students continue to support the Home School Association long after their children have graduated.

As a vocational high school, Saul provides its students all of their academic courses at the school in addition to their course work in agricultural sciences. However, as a history teacher pointed out, Saul is too small to offer the full array of academic subjects (such as Advanced Placement history and calculus) that the large comprehensive high schools in Philadelphia offer. The academic "side" of Saul is overseen by a department head who also teaches physics.

Saul's agricultural program is divided into two general areas--plant sciences and animal sciences. Each area is headed by a coordinator, who is comparable to a department head but does not teach. All students take agriculture science each of the four years they attend Saul. As ninth and tenth graders, students enroll in a rotation of eight one-quarter courses, which expose them to all agricultural offerings at the school. These courses are in some sense "exploratory" in that they facilitate student choice of a concentration area for their last two years at Saul. Eleventh and twelfth graders specialize in one of the following clusters: agricultural production, agricultural mechanics, agriculture products, horticulture, laboratory animal technology, and agricultural business.

Saul also operates a program for elementary school children in the Philadelphia area at Foxchase Farm. Employing two teachers, the farm serves as a site for younger students from urban environments to learn how food is produced.

## Philosophy

According to the acting vice principal,[2] the Saul School tries "to teach the whole person. We want to give them a good overall background because people often change their job five or six times in a lifetime." Although not all teachers agree, the philosophy of the school's leaders is that Saul should serve a wide spectrum of students, not just an elite. As one administrator stated, "We're a public school and we're educating all students to be productive citizens." As a result, staff try to provide occupationally specific training for students who need job skills they can apply immediately after graduation as well as a strong foundation for further training in agricultural sciences for students who plan to attend postsecondary institutions.

Academically, this philosophy is implemented by encouraging students to determine their own educational programs, rather than assigning students to tracks when they enter the school. For example, students decide as ninth graders whether to enroll in (1) algebra or general math, and (2) biology or general physical science. Most ninth graders reportedly enroll in algebra and biology, reflecting their intent to go to college. Students may enroll

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[2]The Saul School has been without a permanent principal for nearly a year. The vice principal is acting as principal, and an English teacher is acting vice principal.

in advanced courses in the later grades even if they did not perform well in the prerequisite courses. According to one math teacher, "There is a right to fail. If the parents want them in Algebra 2, they get in." At the same time, however, counseling is available to help students design an educational program that best suits their abilities and aspirations.

School Climate

The Saul School is marked by its orderly climate. The halls are quiet while classes are in session, and students move between classes in an orderly fashion. This is in contrast with many inner-city schools in Philadelphia where, according to a teacher who had taught in the inner city, "It seemed like kids were always changing classes because there were always so many people in the halls."

Saul staff members attribute this aspect of the school's climate to the policies and character of the current acting principal. "It's a no nonsense philosophy, but it's not dehumanizing." One staff member said:

> He's the most effective administrator I've worked under. He's fair but "hard headed" fair. He sets up guidelines and makes no exceptions unless he changes the policy. He is rigid but almost ruthlessly fair. He has a mind like Mr. Spock [the character on Star Trek who operates by logic alone].

The acting principal treats teachers with the same fairness that he employs with students. "He knows the [teachers' union] contract backwards and forwards," reported one staff member. "One time I went in to see him [about a dispute], and he had the contract all underlined in yellow." As a result of the fair treatment of students and teachers, "morale is high--the only teachers with complaints are those who never taught anywhere else."

The acting principal's policies and consistent behavior reportedly contribute to the school's 96 percent attendance rate, one of the highest in the city. If a student is absent, school staff call his or her parents. If the parents cannot be reached by telephone, the school sends a letter to the parents each day the student is absent. A teacher said, "We force kids to come to school; the average kid here would be absent one third of the time at another school." High attendance makes teaching more efficient and reduces boredom for students who attend regularly. A teacher who previously taught in an inner-city junior high said:

> I had an enrollment of 30. Thirteen would show up, and it would be a different 13 each day. So I'd have to teach the same thing two or three times each week. Here the policy is teach a lesson once and that's it.

Saul appears to have no racial tensions. As a result of formal desegregation requirements, the school's enrollment is 60 percent white and 40 percent black. Before desegregation, whites constituted 85 percent of the school's enrollment. Both academic and vocational classes appear to be fully integrated, as are students' informal groups.

The school's small enrollment also contributes to the orderliness and friendly atmosphere. Students take courses from almost every teacher in the school over four years, and teachers become acquainted with every student. Graduates remain loyal and concerned about the school. An agricultural teacher said, "I have graduates come back who helped plant trees in the orchard and want to make sure they're doing well."

Not all teachers agreed that fewer students ensure an orderly and friendly climate. One teacher said that, "I worked at a much larger school, but I had fewer kids in class because half didn't show up. But we didn't have the closeness there that we have here."

Part of this closeness results from agricultural teachers working daily with students for large blocks of time. As a result, in one teacher's view, "We may be the single most important adult in their lives." These teachers also work with their students during contests, on field trips, and during weekend activities. Because agricultural teachers are with students in many different environments both at school and elsewhere, they discuss and provide advice on a wide range of concerns. "It's not unusual for us to talk to students about their families and problems they have at home; because we're interested in their future, we're dealing with the whole child," said one teacher.

A byproduct of an orderly and humane climate is reduced costs. A recent study found that Saul had the lowest per capita cost of any high school in Philadelphia. The vocational education coordinators attribute this to low security costs (one guard for 600 students) and to low incidence of vandalism because of students' pride in the school. (Costs are also lower because students pay for their own transportation.)

## II. The School and the Community

### Parents

Teachers who have taught at other schools report that parent interest and involvement are much more evident at Saul. The school's Home and School Association has raised money to purchase a copying machine and a bus. Parents also sponsor a major fund raiser each May, which is called Demonstration Day. Students demonstrate their agricultural achievements while members of the Home and School Association man booths selling things like cotton candy and tickets for activities such as hay rides.

Parent support at Saul is largely the result of parents' satisfaction with the education their children receive. According to one staff member:

> Whole families have gone here. For example, we had eight children from the same family. Both the president and vice president of the National Honor Society have younger siblings who want to come. So parents are active over a long period of time.

She noted that "some parents of kids who are long gone are still active."

According to the staff, the former principal fostered strong relationships with both parents and the business community. He was very active in the community and with agricultural associations, attended many meetings, and brought in a lot of extra resources. One staff member described the former principal as "a PR man."

Business and Industry

Teachers and administrators at Saul are in close touch with employers in the vicinity of the school. This contact helps in making decisions to modify current courses, drop offerings with little employment potential, and create new courses. For example, employer input may influence changes in the meat sciences course. This course currently teaches meat cutting, industry practices, and government regulation of the industry. Demand for these skills is decreasing in the Philadelphia area because most meat now arrives at retail stores already cut and prepackaged. The school is considering whether to alter the course to emphasize skills more useful in delicatessens and specialty meat shops.

Employers also sometimes request new training programs. Input of this kind from the business community led to the establishment of an equine sciences course. Faculty members worked for two years with owners of racetracks and stables in the area before initiating the course. Their goal was to ensure that the course met the needs of potential employers so that graduates could be placed in good jobs.

According to the acting vice principal, the school endeavors to address a wide range of community needs. Thus, for example, students specializing in turf management are readily employable at the numerous golf courses in the area. Students who have taken agricultural mechanics are in demand to repair tractors and other lawn maintenance equipment and also are sought by construction companies. Students who have studied small animal science easily find employment with drug companies, pet stores, and research hospitals in the area. (Philadelphia has a large number of medical research institutions, which sometimes hire Saul graduates as lab animal care takers and technicians.)

Although vocational skills are important in placement, equally important are the attitudes and work habits that students learn at Saul. According to one staff member, "One of the most important things we teach is work habits. Employers are delighted with our students because they show up for work on time and put in a full day."

## III. District Structure of Vocational Education

Saul is one of four vocational high schools[3] in Philadelphia. The school does not seem to receive special attention or extensive additional

[3]The official name of these schools is "Area Vocational Technical Schools" (AVTS); the other three are Bok, Dobbins, and Mastbaum.

resources from the School District of Philadelphia. Part of the reason for this may be that Saul is a well-established, successful program, which does not attract or need special attention. Another reason is that the school is unique in the district; it serves a purpose but is not a program that will ever be expanded into other schools as the High School Academies, for example, have been. As one central office staff member noted, "Saul is in a category by itself because it is so highly specialized."

Saul does receive some extra support from the district for vocational education. The vocational education coordinators said that their departments receive approximately $26,000 per year for equipment and materials. (The school as a whole received $52,000.) They estimate that vocational education receives another $26,000 from sales of agricultural products such as plants and flowers raised by horticulture classes. In addition, fund raising brings in between $8,000 and $10,000, which is used exclusively for student activities and clubs.

Like other schools in large urban districts, the Saul School faces long delays in obtaining maintenance services. As a result, if equipment breaks down, it may never be repaired unless the staff can do it themselves. For example, the mechanism controlling the sun shades in the greenhouses has not worked for years. When the horticulture teacher discusses processes for cooling greenhouses, he must describe what would happen if the machinery worked. In practice, the shades must be manipulated by hand.

## Relationship to the Academic Program

State-mandated changes in high school graduation requirements were implemented in school year 1986-87. The overall number of credits required to graduate increased from 18 to 21; additionally, there was an increase in the number of specified courses each student must complete in science, mathematics, and arts/humanities. The effect of these changes has been to reduce the time available in students' schedules for electives, a factor that has implications for completion of vocational programs in Philadelphia.

To graduate from Saul, for example, students must earn 29 Carnegie units, which is considerably more than the number required of the average Philadelphia high school graduate. The Saul requirements include 15 units in academic subjects, 10 in agricultural science, and four in health and physical education. To complete these requirements, students attend Saul for a longer school day than is in effect at most other Philadelphia high schools.

## Changes Over Time

In its earliest days, dating from 1957, Saul was very small and mainly served students with behavior problems or those from farming backgrounds. During the 1970s, enrollment rose from about 100 to 220, with four applicants for each opening. By 1980, enrollment had reached approximately 600 and has remained stable since. Recently, however, the number of applications has declined somewhat and consequently admission has become

somewhat less selective. Nevertheless, administrators noted that the school still has about two applicants for each available slot.

Ironically, the school's success as a model for "magnet" programs in Philadelphia may have contributed to its declining popularity among students entering high school in the city. Following its experience with Saul, during the late 1970s and early 1980s the district established other magnet specialty schools, including the Science and Engineering, Performing Arts and International Affairs High Schools. These schools, in addition to several academic high schools (e.g., Girls), tend to attract some students who might in earlier years have applied to Saul in part because of its academic reputation.

## IV. The Vocational Education Programs

### Student Application Process

Saul is a specialty school to which students must apply and be accepted before they can attend. The process begins formally in January of the year students are eighth graders. They fill out an application form at their home school, which their parents must sign. Selection decisions are based on three criteria: the student's grades in seventh and eighth grade, an interest inventory, and an interview at the school with both an academic and an agricultural teacher. Both the student and a parent attend the interview. Students are then ranked, and those with the highest ratings are selected to attend. In past years, Saul staff made all selection decisions. "They didn't bother us downtown," according to one staff member. This year, because of citywide desegregation, "the process will become more centralized, and more students will be assigned for reasons of racial balance."

Very few students transfer in after ninth grade, although exceptions are made for students coming into the Philadelphia area who have been in agricultural programs in their former schools.

### Summer Program

Before their first year at the school, students attend a four-week summer session, which exposes them to the agricultural activities at the school. They attend the school four hours a day, five days a week. A counselor described this activity as "almost a summer camp," although a student described it as challenging. In addition to offering an introduction to agriculture, the summer session provides students a chance to see whether they really want to come to Saul. Very few withdraw as a result of the experience. According to one counselor, the summer program also "gives students a chance to see if they can get here from home."

School Day

The school day at Saul is one of the longest in the city--starting at 8:45 and lasting until 2:55. The school day at other high schools is shorter by as much as one and one-half hours. The longer school day results from the large blocks of time set aside for agricultural courses. Ninth and tenth graders take two periods of agricultural courses each day. Eleventh and twelfth graders participate in three-period blocks of agricultural courses.

To accommodate the longer school day within the framework of the union contract, teachers start and end their school days at different times. Academic teachers start at 8:45 and usually end at 2:05 unless they teach an eighth period class (for which they receive extra pay). Agricultural teachers begin their day with a planning period during second period and teach five periods (three hours with eleventh and twelfth graders and two hours with ninth and tenth graders). Their day ends at 2:55.

Students must use public transportation at their own expense to attend Saul. This means that some students must ride the bus for one and one-half hours, at a cost of up to $5.50 a week. Some students arrive as early as 7:30 to play intramural sports, visit with friends, and do homework.

Synopses of Individual Programs

Agricultural Program

The following courses are offered at Saul in agricultural science:

- Aquaculture: skills, techniques, and processes in raising fish and marketing fish products
- Equine Science: horse care, including anatomy, breeds, handling, caring, feeding, housing, and health needs
- Meat Science: meat cutting practices and government regulation of the industry
- Animal Production: anatomy, breeds, care, feeding, handling, housing, health, and marketing of dairy cattle, market hogs, sheep, and beef cattle
- Laboratory Animal Science: care, maintenance, uses, and handling of all common laboratory animals
- Agricultural Mechanics: agricultural machinery maintenance, repair, and operation; agricultural construction; basic electricity; and small engine repair
- Retail Floral Business: principles of floral design, care of cut flowers, telephone and wire orders, buying, merchandising, advertising, and flower shop layout

- Greenhouse Management: fundamentals of operating a commercial greenhouse (including ordering, planting, growing, and marketing crops), plant taxonomy and physiology

- Turfgrass Management: soil science and mechanical skills necessary for the establishment and maintenance of golf course turf

- Landscaping and Nursery Production: identifying, propagating, growing, and retailing nursery stock; garden center management; and the basic principles of landscaping

- Fruit and Vegetable Production: introduction to fruit and vegetable growing techniques, pest control, finances, and marketing for large and small operations

- Agricultural Business: introduction to agricultural business practices

Most of the areas of specialization have one or two required courses and a series of electives. For example, students specializing in laboratory animal technology must take Laboratory Animal Science I and II and may choose from among the following electives:

Agriculture Mechanics Construction and Maintenance
Equine Science
Dairy and Swine Management
Beef and Sheep Production
Aquaculture

Many of the electives cut across specialty areas. For example, Animal Production can be taken by a student specializing in Agricultural Production or Agricultural Products.

In agricultural courses, the classroom and laboratory are usually distinct areas. For example, the Greenhouse Management class has a classroom area with a blackboard, teacher's desk, and student desks arranged in rows. In an adjacent area are lab tables for planting and transplanting. A tropical greenhouse and a production greenhouse open onto the back of the classroom. In one class we observed, the teacher lectured on techniques for cooling greenhouses, using a question-and-answer format based on the homework assignment. For example, he asked, "What are some ways to reduce the temperature in a greenhouse?" and then wrote students' responses on the blackboard. Following the classroom session, which lasted approximately 20 minutes, students worked in the lab on planting assignments.

Like other agricultural teachers at Saul, this instructor teaches two blocks. In the afternoon he teaches a two-period block for ninth and tenth graders. His mornings are devoted to a three-period block for eleventh and twelfth graders majoring in horticulture. He said that he covers the following areas in this 18-week course: horticulture theory, planting, raising and caring for crops, light control, and marketing. As an adjunct activity, students operate a shop 30 minutes a day selling plants and

flowers to the public. The instructor teaches a similar course in the fall with an emphasis on the care of poinsettias for the Christmas market.

Another agricultural class used a similar lecture format with a combined class of roughly 40 students in small animal science. The lecture began with a discussion of how to measure an animal's temperature (followed later by actual practice with a rabbit or a dog). The lecture proceeded to the more general topic of causes and diagnoses of disease in animals. In many respects this could have been a lesson in a biology class. For example, when a student named viruses as a cause of disease, the teacher probed for what viruses are.

Academic Program

In addition to fours years of agricultural science, students must take the following courses to graduate: four years of English, three years of mathematics, three years of science, three years of social studies, two years of humanities, and four years of health and physical education. Saul offers the following academic and nonagricultural courses:

- Arts & Humanities
- Communications
- Computer Science
- English
- Health & Physical Education
- Mathematics
  - Applied Math
  - Algebra
  - Geometry
  - Elementary Functions
  - Trigonometry
- SAT Preparation
- Spanish
- Science
  - Biology
  - Applied Biology
  - Advanced Biology
  - Chemistry
  - Applied Chemistry
  - Physics
  - Applied Physics
  - Physical Science
  - Honors Science
- Social Studies
  - American History
  - Psychology
  - Social Science
  - World Cultures
  - World History

Although students are not initially tracked by ability and some courses such as biology and history are heterogeneously grouped, students are eventually placed into college and noncollege tracks. College track students take the algebra/geometry and chemistry/physics courses, while noncollege track students take applied math and applied chemistry/applied physics. In addition, some college-bound students are selected for the honors science program, in which they take a sequence of honors chemistry, honors physics, and honors advanced biology.

Work Experience

Saul has not adopted an extensive work experience program. The staff's philosophy is that it is more important for students to be in school and that work can interfere with learning. Students who do participate in the work experience program leave school after the agricultural block and miss two academic electives. They receive one credit for the work experience.

Instructors discourage college-bound students from participating in work experience. Staff are also concerned that employers may exploit students by, for example, hiring them during the holidays and then laying them off after the holiday rush. They are more likely to encourage students who do not plan to attend college to participate in work experience, especially if the job is closely linked to their career plans.

Some students hold outside jobs related to their interests. For example, one student who is studying landscape architecture works for a landscape company. The school also hires student farmers to take care of pets, greenhouses, etc., on weekends and during vacation. A junior cleans cages and feeds the mice, rats, rabbits, and other animals that are used in the school's small animals program.

Saul students studying horticulture work at the flower show each year for three weeks. They receive excused absences from classes and earn approximately $600. The students help set up the show and work on exhibits and behind the scenes (in the storage area, for example). In the past, only the better students participated in this activity. However, according to one agricultural teacher, "This year we experimented with sending less able students and it worked out well."

Finally, staff make considerable effort to help both college- and noncollege-bound students obtain full-time summer jobs that are related to their fields of interest.

Extracurricular Activities

The school brochure lists 11 intramural sports and the following other extracurricular activities: debating, Future Farmers of America (FFA), honor society, public speaking, and tutoring. The size of the school, the administration's philosophical opposition to interscholastic sports, and the fact that many students commute long distances combine to limit the amount and variety of extracurricular activities. Most of the resources for extracurricular activities go for the intramural sports program.

The FFA is a significant extracurricular activity at Saul but probably not as important as it is in many rural schools. One reason is that the FFA does not have the enthusiastic support of all staff in the school, perhaps in part because some of the agricultural teachers did not come from FFA backgrounds. Some Saul staff are not comfortable with the overall philosophy of the FFA, believing that it supports a white middle class viewpoint that is not completely appropriate for an urban school population. One staff member said, "Kids mouth the FFA creed about 'sharing with others' and I know they are on welfare." Other staff noted that in rural settings FFA is a major school focus whereas in an urban environment, students have many more activities competing for their time and attention.

One of our respondents said, however, that "teachers active with the FFA do promote FFA values and goals and work them into their classes." Moreover, she said, "when we compete [in FFA contests], we have been winners."

## Integration with the Academic Program

Both academic and agricultural teachers at Saul admit that they could do more to integrate academics and vocational education. According to one academic teacher, the academic staff has done considerable work to develop curriculum outlines for all courses that include crosswalks with agricultural courses. The main strategy is to use agricultural examples when teaching academic materials. A science teacher said that he tries to work in agricultural concepts such as soil acidity and current events such as acid rain problems, which are relevant to the study of both chemistry and agricultural science. He also subscribes to agricultural science journals to get ideas for his courses. In general, however, teachers said they need to take additional steps to achieve the level of integration they seek.

Citywide course requirements and textbooks also hinder coordination between academic and agriculture courses. Philadelphia's academic curricula not only specify what is to be taught and when but provide midterm and semester exams. Teachers are thus pressured to prepare their students for these exams. The pressure means that a biology teacher does not teach about animals until the second semester, hindering coordination with a first-semester small animals course.

In addition, teachers are often more comfortable following what is in their textbooks. If agricultural teachers want something taught differently, this means more work for the academic teacher. For example, the algebra textbook deals only with whole numbers, not with fractions. "The agricultural teachers want fractions, and we're stuck doing algebra with whole numbers," according to a math teacher.

## Outcomes

Over 60 percent of Saul's graduates attend postsecondary institutions. Virtually all others obtain jobs in agriculturally related occupations--turf or lawn care, horticulture, and laboratory animal care, for example. Two outcome measures for the programs at the Saul School are its high placement rates in postsecondary institutions and in well-paying jobs. Sixty-two percent of Saul's graduates attend two- or four-year institutions. The school posts a list of all seniors who have been accepted at various institutions. Postsecondary institutions with the most names under them appeared to be Pennsylvania State University, Temple University, and Delaware Valley State University.

Nearby Fairmount Park, one of the largest municipal park systems in the country, employs many graduates of the Saul School. Although jobs in the park system are Civil Service positions obtained by examination, one teacher said that "our students just blow everybody else away." Additionally, research hospitals, medical schools, and drug companies in the Philadelphia area employ graduates of the laboratory animal program. These jobs pay well, even for recent high school graduates. One of the instructors in the program said that, "When I started teaching, I placed students in jobs where they made more money than I did teaching."

We asked several agricultural teachers how they thought their programs and the school in general should be evaluated. Do they believe that they have failed if a student does not go into a training-related job, or does not go into a job related to agriculture? The consensus was that these are not indicators of failure. One agricultural teacher noted that he had seen Armand Hammer on television that morning. "He was trained as a doctor but never practiced medicine. Would you consider his education to be a failure?"

## V. The Teachers

### Background and Training

The academic teachers at Saul are, in general, more experienced than the agricultural teachers. For most of the agricultural teachers, Saul is their first and only high school teaching experience. In contrast, all the academic teachers have taught elsewhere in the Philadelphia system and have transferred to Saul, either voluntarily or as a result of a "forced transfer" because of a Reduction in Force (RIF) at their former school. (Under the current teachers' contract, forced transfers may select school assignments ahead of voluntary transfers, and Saul is among the top five schools that teachers choose.) Agricultural teachers tend to have college degrees either in agriculture, vocational education, or science. We did not interview any teachers who had retired or moved from industry to Saul without a college degree. Some of the agricultural teachers have considerable postgraduate training. For example, one horticulture teacher has a B.S. and M.S. in horticulture and a Ph.D. in agricultural education.

### Integration with the Academic Program

While the relationships between academic and agricultural teachers appear to be generally good, there is some evidence of conflict and jealousy. Some academic teachers resent having to teach many more students, even though their class periods are shorter. There also is some conflict about who is responsible for ensuring that students have the academic skills to succeed in the agricultural programs. An academic teacher said, "The agricultural people say, 'We'd like to do this but the kids don't have the math.' We say, 'We taught that but they forgot it between here and there.'" Some academic teachers resent privileges they believe agricultural teachers have that they don't. "Agricultural classes take a lot of field trips, yet field trips [for academic subjects] are strongly discouraged." Also, "Students are excused [from classes] to work at the flower show. In theory they make up the work."

In many respects Saul is two schools with two faculties. Scheduling is a major cause of this division. Academic teachers begin and end their day earlier than agricultural teachers. All academic teachers are teaching when the agricultural teachers have their planning period. Most agricultural teachers teach during academic planning periods. As a result, the school schedule provides no time when agricultural and academic teachers can plan

together. In addition, since most faculty meetings are by department, such meetings are not a mechanism for integration of the faculty.

The physical arrangement of the buildings also inhibits interactions by separating academic and agricultural teachers. "You can teach here 20 years and never go into the agricultural buildings," a science teacher said. A math teacher said, "There are a lot of [academic] teachers who never walk across the street [where the barns and pens are located]."

Attitudes Toward Students

Several agricultural and academic teachers said that the quality of Saul's students has declined in recent years. One reason noted is that Saul now has to compete with other specialty schools and magnet programs, such as the high school for science and engineering. Some of the other special schools aggressively seek students, while Saul has just started to recruit them. Some schools offer transportation tokens and other benefits to attract students, while Saul still requires students to pay for their own transportation. Some teachers worry that the loss of highly able students to other specialty schools may have a spiral effect. "As the ability level declines, parents are less willing to send their talented kids here," one teacher said.

Even so, some of the agricultural teachers actually see some advantage in the current student population over that of previous years. Some believe that, perhaps because current students are not as well qualified, they are more interested in obtaining agricultural jobs immediately after graduation and as a result are easier to place.

There is some evidence that teachers at the Saul School are uncomfortable teaching special education students. One agriculture teacher said, "Do you want me to be honest? Mainstreaming doesn't work. Having kids with emotional problems and learning disabilities is difficult when you have 24 kids. I don't feel competent to handle them. Good students are held back because you have to go slower."

## VI. The Students

Demographic Characteristics

Saul students come from all sections of Philadelphia, although they are most likely to live in nearby neighborhoods. Virtually all of the school's students are either white or black. Respondents said that a reason for this is the perception of agriculture among some ethnic groups. For example, one staff member noted that the Korean community in Philadelphia comes mostly

from the merchant class. They see farm-related occupations as suited for peasants and thus discourage their children from attending Saul.[4]

Many students at Saul attended parochial grade schools. One staff member said that about half of the students came from parochial schools. Apparently tuition for Catholic high schools in Philadelphia is significantly higher than for elementary schools, and, for parents who are unable to afford the high school tuition, Saul is seen as a "safe" alternative to large, impersonal public high schools.

Approximately 60 percent of the graduating class attends two- or four-year institutions. This rate is much higher than that of many comprehensive high schools in Philadelphia, even though Saul is not a scholastically elite school.

In recent years Saul has experienced a decline in the number of applicants. According to one counselor, "Six or seven years ago we had four applicants for every opening. Now we have two and one-half per opening." Because of this declining application rate (which has resulted from the opening of other specialty and magnet programs, as well as overall enrollment declines in Philadelphia), Saul staff have begun systematically recruiting students. At one time, Saul staff recruited in parochial schools, but the archdiocese schools now discourage this because they need the students too.

Attitudes Toward Vocational Education

Students display positive attitudes toward vocational education. As one teacher noted, "There is no stigma attached to agriculture here because everyone takes agriculture." The community attitude toward Saul has changed over the years, as a teacher who grew up in the area and attended a nearby comprehensive high school reflected. "People used to make fun of students going to the 'farm school.' Now it's flip-flopped, perhaps because the academic component of the school has become stronger."

Some students resent the limitations that a small school imposes. One junior expressed a desire for interscholastic sports. "It gets on my nerves," she said. "If we played [a nearby school] in football, maybe we wouldn't have to rumble with them." Other students are frustrated by the limited number of academic alternatives. "You don't get the selection of academics because of agriculture," one student said. "If you want to take a special biology course, it's not offered and you wouldn't have the time anyway." Despite these frustrations, students choose to come to Saul, and most remain.

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[4]As noted previously, Saul's racial composition is 40 percent black, 60 percent white. For all public schools in Philadelphia, the racial breakdown is 68 percent black, 28 percent white, 3 percent Hispanic, and 1 percent Asian.

Hopes and Aspirations

Students at Saul enroll for a variety of reasons. Many students come for reasons related to animals or horticulture. The school helps clarify their career goals and opens up opportunities and choices they had not considered. A junior said, "I came here for the animals because I wanted to be a vet. My goals have changed, though, and I now see other possibilities. Now I want to go into animal research." Another junior also wanted to be a veterinarian. (A teacher said that half the students come to Saul because they want to be veterinarians.) She is now majoring in poultry science and wants to pursue this area at Pennsylvania State or Purdue. Other students come to Saul for reasons unrelated to agriculture: because it is near home, because it is a "safe harbor." A senior said he came to Saul "because it has a good reputation." He has become interested in horticulture and plans to continue his studies in this field at Temple.

## VII. Summary Themes and Indicators of Success

Although the Saul School is not perfect, it appears to be successful. Several factors have contributed to that success.

The former principal was a key person in building the school's reputation. In part because of his emphasis on involving parents, parental support of the school remains strong. This support is expressed both through fundraising efforts and through backing for the school's disciplinary and academic policies. The former principal also helped build strong relationships with the business community and other potential employers. Part of the success Saul experiences in placing all graduates who want jobs is the attention staff pay to employers' needs and changes in the local labor market. The former principal was instrumental in maintaining high morale among the agricultural teachers. As one teacher noted, "[he] believed in vocational agriculture and publicized the school." Agricultural teachers believe that "it's important to have a principal with a vocational agriculture background who believes in the system." They worry that a principal coming from an academic background will be less likely to give full support to the school's vocational program.

The current acting principal has become an important figure in maintaining and even improving the climate and reputation of Saul. It is clear that his "ruthlessly fair" execution of school policies is a major reason for the school's orderly atmosphere. His emphasis on maximizing instructional time has strengthened both the academic and agricultural programs. He has instituted policies to reduce nonproductive time by reducing the lunch period from 45 minutes to a half hour and eliminating study hall and breaks. His policy of scheduling extracurricular activities before school helps students burn up excess energy before beginning the school day and encourages them to come to school early.

The acting principal's practices also help to maintain high morale among teachers. He never undercuts the authority of those under him and consistently backs teachers who enforce school policy. He restricts staff members' time at inschool and districtwide meetings, putting the school and

teaching first. The principal also runs interference for teachers and administrators with district officials; for example, he has been known to ask officials to leave teachers' classrooms if he feels the official is hindering the teacher in any way. Finally, he treats everyone the same, regardless of status.

In addition to the acting principal, other people and factors contribute to the positive school climate. One important element is the size of the school. An enrollment of 600 permits administrators and staff to treat students as individuals. Everyone knows everyone else. No student gets lost. In addition, administrators and teachers obviously care about students. For example, the acting principal knows every student by name. Because they teach students several hours a day and work with them on projects outside of school, the agricultural teachers advise their students not only on school-related issues, but also on personal and family problems. As one teacher noted, they may become the most significant adult in students' lives.

In part because of its reputation and in part because of the climate they find at the school, students and teachers come to Saul because they want to be there. Some students enroll because of its reputation as a safe school or because it is near their homes, but many come because they are interested in agriculture and agricultural careers. Similarly, teachers want to teach at Saul because of its reputation and climate. Virtually every academic teacher taught at some other high school or junior high in Philadelphia and transferred to Saul voluntarily or chose Saul when forced to leave their former school because of a RIF.

The organization of the vocational curriculum also plays a role in the success of the school. Students are provided with ample opportunity to explore all agricultural offerings both before they enroll and during their first two years. When they enter the eleventh grade, students choose from among a wide assortment of courses, which allows specialization. Classes are highly structured. Students are expected to take notes from lectures, participate in discussion, and do the assigned homework. The two-and three-period blocks for agricultural classes permit teachers to vary coursework among lectures, discussions, demonstrations, films, and hands-on activities.

Teachers and administrators agree on indicators of Saul's success. Some of these indicators can be termed internal and are linked to the school's climate. For example, even though the school faces increased competition for students within the district's overall declining enrollment, it still has more than two applicants for every available slot. Once enrolled, students come to school regularly, attend classes, and graduate. (Saul admits roughly 150 each year and has an average graduating class of 130.) Together with such external indicators as high postsecondary enrollment and job placement rates, these factors suggest that the school merits its reputation as an effective vocational high school.

# VI. VOCATIONAL EDUCATION IN AREA SKILL CENTERS

Conceived in part as a mechanism to concentrate resources needed to provide high-quality vocational programs at the secondary level, area vocational-technical centers typically offer a variety of vocational programs under one roof. Students attend a vocational center on a part-time basis, traveling from their home high schools where they take their academic courses. One of two such centers in Philadelphia, the A. Philip Randolph Skills Center offers occupationally specific training for students whose primary goal is to enter the labor force after graduation. The case study of Randolph describes the types of training available to students at the Center and the strategies the school has implemented to respond to challenges facing secondary vocational education in this decade.

The second case study in this section describes the Wright Vocational Cooperative Center, an area shared-time school established to provide exploratory vocational education to students in ten school districts in Minnesota. The case study illustrates the organization of cooperatives, which enable low population school districts to pool resources in order to offer students expanded vocational experiences that individual districts are often unable to support.

# A. PHILIP RANDOLPH SKILLS CENTER
Philadelphia, Pennsylvania

Becky J. Hayward

## I. Overview

### The Setting

The A. Philip Randolph Skills Center is one of two secondary-level area vocational skills centers in Philadelphia. It is housed in an old asbestos factory that was donated to the school system for this purpose. Located in Northwest Philadelphia just off the Schuylkill Parkway in a combined manufacturing and blue collar residential section of the city, the area around Randolph looks suburban, because of the park-like grounds surrounding the psychiatric institution across the street. Down the street are some fast food restaurants and small stores. The school itself looks like the manufacturing facility that it once was; although the interior has been radically restructured, the one-story brick exterior remains unchanged. The only indication that this is a school is the name above the front entrance. In addition to the main building, there are some mobile classrooms in back; since enrollments have been declining in the past few years, these are currently not in use.

### Philosophy/Mission/Goals

According to its principal, the mission of Randolph is to train students for jobs that are available in the community and that are in fields in which there is advancement potential. Thus, for example, the school recently dropped a program in long-term geriatric care. Although there is high demand for workers in this field, discussions with health care providers in Philadelphia indicated little opportunity for advancement, with earnings potential quickly topping out at a relatively low maximum. This is not the kind of future that Randolph's decisionmakers envision for their graduates.

Interviews with other administrators, instructional and guidance staff, and students at the school revealed a high level of consensus about the school's fundamental purpose. According to the four cluster coordinators, Randolph's objective is to train students in skills for employment, with actual employment the ultimate goal. They believe that the training provided at the school is good enough to enable students to obtain desirable jobs without postsecondary vocational training; according to the trades and industry coordinator, "we all feel very strongly about this."

Another administrator commented that "attitudes and skills are what we sell." A guidance counselor described an innovative "directive" counseling program that had been implemented at Randolph, in the face of potential teacher union objections, to ensure that graduating students would have job search and employability skills to complement the occupational skills they acquire at the school. As he commented, while postsecondary vocational

training is useful for many of the students, those who cannot or do not wish to access further education need to leave Randolph fully equipped for success in the labor market.

Finally, many of the students attending Randolph go there with fairly clear occupational goals in mind and view the school as a place where they can work toward those goals. One carpentry student, about to graduate and preparing for the union apprenticeship examination, said he always wanted to be a carpenter, and through talking with other students, had decided that Randolph was the best place to go. (No one in his family had ever been a carpenter.) Other students reported that their time at Randolph had helped them to refine their goals: one student who entered in automotive mechanics will enroll next fall in a postsecondary aeronautics program in Oklahoma. In his view, this is not a change in plans but a logical development based on his experiences in school, where, as he said: "I've worked for the school, and they've worked for me."

School Climate

The first thing a visitor to Randolph notices is the highly polished floors. According to one administrator, teachers and students need something to be proud of; they need a place where they will enjoy coming to work, and the school must therefore be clean and orderly. As a symbol of his intentions regarding the climate he insists on maintaining in his school, the principal pays for the floor wax out of his own pocket. He is, by all reports, "a stickler on wax;" and all the broad halls throughout the school must shine. This policy carries over into the shops: all the equipment in the baking shop is spotless and polished; the automotive area is clean and orderly; the cosmetology lab looks rather like a downtown beauty shop.

According to one of the vice principals, Randolph is "the best in the city" for overall atmosphere, learning environment, and student deportment. The students are very polite, although they are not selected on this basis. Clearly, it is something they quickly learn at the Center. Teachers are consistently cooperative, concerned, and knowledgeable. The school's climate is essentially attributable to its leadership, which sets the tone for everything that occurs at the Center. Apparently the three top administrators walk through the building frequently and do not hesitate to correct behaviors that are considered inappropriate. For example, one look from the principal led several students to remove their caps.

Teachers do not view this leadership presence as threatening or insulting; they understand that its purpose is school improvement and a better environment in which to do one's job. The high morale that characterizes the school is reflected in the fact that teachers tend not to leave immediately at the end of the day. In fact, several of the teachers interviewed during the visit were so enthusiastic about their message that they were in no hurry to depart. Others were meeting on the school improvement plan long after the school day had ended. As the co-op coordinator commented, "Teachers and students at Randolph like to come to work; you don't see teachers flying out the door at the end of the day. We have low turnover among staff, and the school's administrators care about

kids, about teachers as people, and about upgrading the education we provide here, even if it means working nights and weekends."

Overall, then, Randolph projects an image of a place where learning can take place. Students are orderly, polite, and clearly on task. The building is spotless and well equipped; teachers are professional and extremely enthusiastic; administrators are proud of what they are doing and candid about their problems as well as their successes. Randolph has a climate that seems ideal for accomplishing the school's mission of training young people for meaningful labor force participation.

## II. The School and the Community

### Parents

As a shared time center, Randolph has no Home-School Association, which is the principal means of involving parents in a school's activities in Philadelphia. Nevertheless, the Center uses several methods to foster parent involvement and support. The principal periodically obtains telephone numbers of parents and makes calls to ask about their satisfaction level concerning their child's vocational program. This strategy yields substantial feedback, which is used in planning programs and working with individual students as necessary. Additionally, the school tries to have an open house for parents once a year, for which there is generally a good turnout.

Administrators also contact parents under the school's policy for dealing with absences. The official district-wide policy is that a letter goes to parents after a student has been absent three times, requesting that the parent call the school (thus ensuring that the student will deliver the letter). After six absences, the student's parent is asked to come to the school, and after nine, according to the official policy, the student is dropped from the roll.[1]

Parents may also be contacted toward the end of students' programs in the following manner. Randolph's guidance counselors work with each senior in developing a post-high school plan. This plan is the final product of the directive counseling program Randolph has implemented for its seniors. It specifies in detail the student's intentions for enrolling in postsecondary institutions or obtaining employment following graduation. During their final semester, the counselors monitor students' progress in gaining admission to postsecondary training or in job search activities. Counselors involve the parents of any students who drag their feet on plan development or implementation. They are determined that each student will leave Randolph knowing what lies in his/her immediate future.

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[1]The principal commented that this eventuality is unlikely; generally the early contact with parents resolves the problem, but the threat of being dropped is a useful device for conveying the point to students that they need to be in school.

The evidence offered for the efficacy of these mechanisms for involving parents in their children's vocational programs is that many brothers and sisters of former students choose to attend the Center. The theory is that if parents were unhappy with the school, they would not encourage, or permit, other children to attend the Center.

Advisory Groups

Each occupational program at Randolph has a "craft committee," which is required to meet twice a year. The committees review curriculum, advise on equipment purchases, and, most important, provide information on availability of job opportunities for both graduating seniors and co-op students. With the exception of construction, most of the craft committees are mainly composed of small business representatives. This configuration is based on an administrative decision taken by the Center. Most of the jobs available to vocational students completing high school are in small businesses. Membership of representatives from this sector on the committees signals the school's responsiveness to its employer target group and creates linkages between the schools and employers that can be expected to pay off with jobs.

Employers

As the description of the craft committees points out, the main target group for Randolph in terms of jobs for graduates and students is small businesses. Some students do go directly into high-paying positions in large organizations. One example cited by several administrators and instructors was a student who obtained a welding job at $11.20 per hour in a large railroad car manufacturing facility located near the Center. Further, some of the students graduating in food service and hotel/motel management have gone to work for large chains.

In general, however, the experience at Randolph is that students graduating from high school, especially in metropolitan areas, are often stereotyped as too young and unreliable; therefore big businesses are reluctant to hire them. The small businesses, on the other hand, cannot afford to provide much on-the-job training, at least not of a formal nature, or to engage in extensive searches for employees. Thus the school tries to develop receptivity to its students among the small shops--those that do not report to the Employment Service.

School administrators view the small employers as an entry avenue for their students. The important thing is for graduates to obtain their first job, at a reasonable wage, and to gain experience and maturity that will then facilitate advancement in the labor market over time, perhaps to other small businesses but perhaps to one of the major employers in the city. This is one reason that heavy emphasis is placed on employability skills--industriousness, respect for authority, self-reliance--that will be useful on any job. It is also the reason for the "cluster plan" (described in more detail later) in operation at Randolph. While students train in an occupation, the goal is for students to have skills that will be transferable such that they are equipped to grow with the changing labor market.

One strategy the principal uses to ensure that the Center's programs are both labor-market responsive and provide advancement potential for students is to pick up the telephone. He had recently conducted an informal survey of 12 or so hospital administrators in Philadelphia to discuss trends in health care occupations. Based on these conversations, he is dropping the nursing assistant program because graduates have little advancement potential in terms of earnings and because Philadelphia medical facilities employ persons as nursing assistants without requiring the level of training associated with a two-year program. Additionally, he is restructuring his medical lab assistant program to accommodate changes in the field. Specifically, the program will place increased emphasis on the use of computers for lab operations and will add work in microbiology.

## III. District Structure of Vocational Education

### Role of Vocational Education in the District

As stated in the district's long-range plan for the period 1985-1990, the purpose of vocational education is the following:

> Concerned with the total development of an individual, vocational education develops an appreciation for the work ethic, proper attitudes, proper work habits, usable consumer and employment-related knowledge, leadership skills, and saleable employment skills.

To achieve this purpose, "it is the mission of the Division of Career and Vocational Education [the district division responsible for administering vocational education in the public schools] to provide a labor market intensive education, training, job placement, and related monitoring and evaluation system for the School District of Philadelphia" (Long Range Plan for 1985-1990, pp. 1, 2).

The district implements its objectives through a vocational education delivery system that includes four vocational high schools, two shared-time skills centers, 31 comprehensive high schools, nine academy programs (described elsewhere in this report), two adult training centers, and 10 centers that provide supportive services for persons with disabilities.

Districtwide enrollments in vocational education are approximately 26,000 secondary and 1,200 postsecondary students. Using a standardized competency-based curriculum, 1,100 instructional staff offer a total of 90 different vocational curricula. Instruction is supported by a central administration that comprises one Executive Director, an Adult Training Director, five curriculum-specific assistant directors, three adult program assistant directors, 13 supervisors, six assistant project coordinators, two program activity liaison staff, and a coordinator of the district's Vocational Education Management Information System (VEMIS).

As part of its ongoing response to changing educational and labor market needs in the city, the Division of Career and Vocational Education implemented a standardized competency-based curriculum for all vocational

offerings during the 1984-85 school year. Other changes currently underway are construction of a new high school and technical center, expansion of the high school academies program to serve a total of 5,000 students (the academies currently enroll about 1,000 students in all), and major expansion of winter part-time and summer full-time job opportunities for students enrolled in vocational programs in the district.

The specific objectives of these changes are articulated in a series of planned student-oriented outcomes. These outcomes, in addition to emphasizing equity and access, focus consistently on the goal of employment for vocational education students. They include the following:

- Each student who completes a vocational education program will be able to secure employment, pursue further education, or enter the military.
- Students will progress through the duty and tasks of CBVE in a manner that will enable them to be employable at the conclusion of their program.
- Equity for each program [and therefore student] will be assured by the installation of standardized equipment, supplies, and appropriate instructional hours.
- Access to any appropriate vocational program will be available to handicapped students, ESOL students, and students of both sexes.
- Students will demonstrate career decision-making skills at the awareness, exploratory, and preparation levels (paraphrased from the Long Range Plan, p. 6).

This focus on training for jobs pervades the objectives and operations in evidence at Randolph.

Relationship to the Academic Program

Pennsylvania legislated new state high school graduation requirements in 1984 and implemented the changes in the 1986-87 school year. Past and current requirements are shown in Table 1. Since the old requirements covered only three grades while the new ones cover four, the absolute number of credits required over a four-year period has not changed as radically as might be inferred from the discrepancy between 13 and 21. The old requirements specified 18 credits over four years. Nevertheless, overall high school program requirements have increased, and the specification of courses required is also greater.

To complete a vocational concentration, students need nine electives, which means that they end with a total of 25 credits when they graduate. One of the problems that has resulted from the overall increase in graduation requirements has been that students tend not to be able to start their vocational program until eleventh grade. For programs such as cosmetology, this means that students cannot complete the number of class hours required for state licensing during their time in high school and have to make up

hours, or, as some do at Randolph, return to school as postgraduates to complete their program. Further, failure in an academic course may complicate scheduling to the point that, to graduate, students have to drop their vocational program.

Table 1

Pennsylvania's High School Graduation Requirements

| Subject | Requirements Old* | New** |
|---|---|---|
| English | 3 | 4 |
| Mathematics | 1 | 3 |
| Science | 1 | 3 |
| Social studies | 2 | 3 |
| Arts/humanities | 0 | 2 |
| Health/physical ed. | 2 | 1 |
| Electives (including approved voc ed courses) | 4 | 5 |
| Total | 13 | 21 |

*These requirements were specified for grades 10 - 12.
**These requirements cover grades 9 - 12.

Decisionmaking and Governance

Primarily because of a strategy of maintaining a strong, visible administrative presence throughout the school, the Randolph Center is extremely well-organized and businesslike. The principal and two vice-principals spend a considerable proportion of the day out in the shops, not so much as monitors of students' and teachers' behavior, but as resources, available to provide any support that may be needed. Instructional and support staff are consistently treated as professionals and are granted the respect and decisionmaking power to operate their programs as they see fit. The cluster coordinators say that the principal "will work with you and listen to you." This contributes to good peer relations among the coordinators. Thus there is a feeling of teamwork among staff, which minimizes difficulties and enables people to focus their energies on the "product"--the students and their occupational training.

The efficacy of this management strategy is suggested by the high morale evident among administrators, staff, and students at the Center. Virtually all respondents believe that Randolph is the best school in the city. A vice principal, asked to rate the school and explain his answer, believes that the school is "better than excellent--it is great--because everything is spelled out and well organized. There is no doubt about the processes, curriculum, expectations, and everyone, including teachers and students, knows what those expectations are." The co-op coordinator says that the principal and vice-principals, who are "color blind" (a point made

by several other respondents as well), care about the students and teachers as people and about continuously upgrading the education provided by the Center. Leadership, everyone agrees, is the key.

In this instance, the critical ingredient in leadership success is experience. The principal of the Center has spent time in both district and Central offices. Thus he has gotten to know the system overall very well and knows how to access the resources and other support he needs to operate his school. For example, he recently wrote a grant and received funds to start a new program in high tech electronics occupations. Additionally, he currently is chairman of the vocational principals' association, which meets once a month to discuss issues that may arise concerning vocational education in the system. All of these factors appear to have contributed to the current status of Randolph as a relatively well-supported school in terms of equipment and other resources needed to provide high-quality vocational training.

The key to the administration--and likely to the success--of Randolph appears to be a carefully implemented philosophy of orchestrated change, combined with very close attention to virtually all the details of running a school.[2] As noted elsewhere, programs are added, dropped, or reconfigured in response to labor market trends and also based on analysis of their likely career pay off for students. The vice principals have recently traded responsibilities, a strategy that creates a change within overall school stability and probably brings some fresh approaches to administrative duties. Even the building configuration changes often. The one-floor structure has concrete-block walls that the principal periodically has torn down and relocated to accommodate space needs of new or changing programs.

The cluster coordinators' responsibilities include oversight of programs both within and outside their areas of vocational certification. The trades and industry coordinator is trained as a nurse (with extensive postgraduate training in organizational administration), and the coordinator in charge of health occupations is a welder. This deliberate assignment policy facilitates definition of their responsibilities as coordinative rather than solely substantive and also fosters close interactions among the four coordinators in discussing curriculum, scheduling, and other issues.

The school is currently installing a building-wide communications system in which all computers will be linked. (This is in addition to their computerized system for recording student achievement of skill-area competencies, which was developed early in the school's history and has been replicated elsewhere in the country.) During the site visit, school officials were administering vocationally oriented basic skills tests to all students on a trial basis. The vice principal in charge of school

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[2]As one of the vice principals explained, years ago when the principal was a high school science teacher, he was absolutely obsessed that the window shades in his classroom be precisely at the same level at all times. If students adjusted the shades, he would have a fit. The psychological principle here is that if students know that you care about the little things, they will never get around to challenging you on the big things. The approach seems to work.

improvement explained his hope that the achievement tests might prove to be a useful means to evaluate status and progress in school improvement.

This year the Center began implementing a district-wide School Improvement Program whose purpose is to increase the overall quality of instruction in the Philadelphia public schools. The phased program, which is four years old, was first implemented in the city's elementary schools and then in English and math departments in the high schools. This year all departments in the comprehensive high schools, vocational high schools, and skill centers are undertaking formal school improvement activities that include identification of problem areas and implementation of strategies to address priority problems. Included in the plan are specified goals, staff development activities, and strategies for evaluating progress. At Randolph, the cluster coordinators are working with teachers to identify areas of concern and devise timelines, budgets, and activities to effect improvements. Plans are then reviewed by the regional superintendents prior to implementation. As the vice principal commented, the initiative is not just "pie in the sky" but targets very specific areas in which improvement is needed.

The student scheduling system employed by Randolph is called "week-about." Students attend the Center for full days every other week. Alternate weeks are spent in academic classes at the home school. Because their vocational studies are full-time, the instructional environment simulates the work place. Students are expected to show up on time, to be on-task during work, and have breaks as workers do in factories, businesses, restaurants, bakeries, dentists' offices, hospitals, and beauty shops. Thus the very format of their learning is teaching them work behaviors as well as occupational skills. In fact, the entire "organization" that is the Randolph Skills Center reflects a structured, but participatory, approach to operations whose intent is to provide the type of vocational education thought to be central to improving the post-school options of the students it serves.

Changes Over Time

Opened in September 1975, Randolph was the first of five planned skills centers in Philadelphia.[3] The centers were to have replaced vocational education that was suffering from outdated equipment and facilities, particularly through a concentration of resources in a few localities. As the first of the planned Centers, Randolph benefitted from a relatively high commitment of staff planning and development time, financial resources, and overall system commitment to the idea. Thus, for example, one of the current vice principals (who was assigned to planning activities for two years prior to the school's actual opening) visited centers in other localities (North and South Carolina and Dallas) for ideas. The planners purchased curriculum from the Mid-America Vocational Curriculum Consortium in Oklahoma, and received technical assistance from the director of that consortium in implementation. The school system invested relatively large

[3]When the school system planned the centers, there were eight subdistricts within the city; they have since been reorganized into seven.

quantities of resources for start-up, at a time when overall funds for vocational education in the system were substantial, all of which meant that resources were available for quality equipment and supplies.

The school began with mostly new teachers, who were "molded to our concept." There was extensive consultation with the business community in planning the programs and the curriculum. Administrators were carefully selected. It is interesting that two of the top administrators had been academic teachers in comprehensive high schools and thus brought to the Center a perspective that was not strictly "vocational." Additionally, there was a very high level of commitment from the Central Office to the concept of a skills center.

The environment in which the Center was established was in some sense ideal. But times have changed in Philadelphia, as elsewhere in the nation, since the school opened in 1975. Budgets have been cut, enrollments have declined, vocational education has fallen into disfavor (particularly to the extent that research has not demonstrated clear labor market payoffs), and many educators believe that students should be spending their high school years in academic courses to build a foundation for social and labor market success. Further, to many students, parents, and academic faculty, there is a stigma attached to vocational education at the high school level. As one of the cluster coordinators at Randolph put it, many people view "vocational education as dumb kids banging blocks together."

What have been the effects of these changes on the Center? First, it is interesting that there is very little staff turnover. The three top administrators have been at Randolph since before the school opened, and the principal has declined offers of advancement. Most of the teachers stay there after they join the school. Further, the high morale that is evident throughout the school suggests that the assaults on vocational education have helped to reaffirm the school's commitment to its purpose. As noted earlier, the Center is constantly engaged in change at all levels, in order to accommodate the new circumstances. Within that reality, there appears to be a conviction among its administrators and instructional staff that the purpose they are engaged in is an unchanging and legitimate one. The school's approach is to confront new challenges through upgrading and improvement in order to accomplish that purpose rather than focusing on the potentially depressing aspects of retrenchment. Using this strategy, the Center, changing constantly, has remained relatively stable and vibrant since its opening.

## IV. The Vocational Education Programs

The occupational programs at Randolph are organized into seven clusters: power mechanics, manufacturing maintenance, construction, distribution and warehousing, communications, personal services, and health assistance. Four persons serve as cluster coordinators; each coordinator covers two clusters, with personal services divided between two of the coordinators. The skill areas constituting the clusters include the following:

Power Mechanics

- automotive tech
- general automotive mechanics
- auto body
- auto painting
- diesel engine repair

Manufacturing Maintenance

- welding
- machine tool

Construction

- carpentry
- plumbing
- electricity
- masonry
- building maintenance
- building sanitation (a special education curriculum)
- custodial services

Distribution and Warehousing

- distribution
- assembly and packaging

Communications

- electronic product repair
- lithography
- biomedical instrument repair
- graphic design
- computer electronic technology
- robotics tech
- telecommunications

Health Assistant

- dental assistant
- medical lab assistant
- nursing assistant
- medical records technician

Personal Services

- cosmetology
- food services
- child care
- hotel/motel management
- baking
- fashion design

As this listing indicates, there are no business or distributive education courses at Randolph. These programs are firmly rooted in the comprehensive high schools and are not duplicated at the Center. Additionally, some of the comprehensive schools have other programs, including automotive repair. District policy does not permit students attending those schools to enroll at a skills centers even though the skills center may have more up-to-date training in areas such as automotive tech. Interestingly, Philadelphia has one of the nation's few parochial vocational high schools. Students there do attend Randolph, but only if they choose a program that is not available in their home high school.

Randolph uses a recruitment and application process for selecting students for its programs. Applications include vocational interest and basic skills tests as well as interviews. In practice, the Center turns down very few applicants, but they do use the process to try to match students to clusters and specific occupational areas. Further, for some programs, reading and math scores are used in selection. This is true for the high tech programs and also for cosmetology, where students need to have a certain proficiency in reading to pass the state licensing examination.

To ensure good student/program matches, the school has also implemented an informal "hold-harmless" change period. From the beginning of school through the end of October each year, new students can change programs without suffering any consequences, such as loss of credits. The rationale for this arrangement is that while students do visit the school prior to enrollment and may think they know what program they want, a trial period, along with the opportunity to see what is going on in other shops and talk with students enrolled in other programs, may lead them to change their minds. As the principal commented, some programs may seem attractive to students in the abstract but turn out not to be consistent with their expectations.

The utility of this arrangement is particularly apparent in a school such as Randolph. First, it provides some latitude for exploring. Although not structured like those schools that have extensive exploratory vocational courses, the hold-harmless policy does give students at least some time, and encouragement, to change their minds. This means that they can remain in vocational education without having to remain in a particular curriculum that is unsuitable. Second, the policy benefits the school in that students are more likely to remain enrolled rather than to drop vocational education altogether. As with other strategies for meeting student needs that are in place at the school, this policy allows for change within the broader structure of a stable instructional environment. It is also another indication that the primary interest at Randolph is the needs of individual students.

At Randolph, cosmetology and welding are always overenrolled, although welding is less so than in the past. Food service is typically oversubscribed, but the teachers in that program will take anyone who really wants to enroll and adjust their classes to accommodate a varying number of students. One respondent noted that five years ago the Center was always overloaded, but declining enrollments and increased graduation requirements have largely eliminated this problem.

Classroom Components

All instruction at Randolph is competency based. When it opened, the Center adopted its curriculum from Mid-America Vocational Curriculum Consortium (MAVCC) and has continued to purchase materials from that source. (MAVCC is a consortium of midwestern states that invest considerable resources in curriculum development. Members of the consortium share the results, and MAVCC also markets curriculum and instructional materials to nonmember states.) Thus the Center is using curriculum that has been widely disseminated nationally, particularly in the midwest but also as far away as the Pacific Islands. The school system has recently mandated a standardized curriculum for all vocational education in the district. According to one respondent, much of Randolph's curricular materials, including tasks lists, have been adopted citywide. Consequently the Center has not been required to make extensive curricular revisions in response to the district's decision to implement a standardized curriculum.

To support the competency-based instruction, the Center has a computerized system for recording students' achievement of task competencies. When a student masters an instructional objective, he/she enters a card that is signed by the instructor, and his/her computer file records the competency. Graduating students can obtain these competency certificates for use during their job search to show potential employers precisely what they can do. For example, an auto mechanics student had certified the following competencies in fuel systems:

| | |
|---|---|
| remove & replace fuel pump | install carburetor |
| clean carburetor | remove & replace oil pan |
| remove & replace oil pump | replace flywheel |

Students work at their own rates, with teachers establishing the overall percentage of competencies that must be achieved for grading purposes. Teachers and cluster coordinators strongly believe that competency-based instruction is the best model for teaching occupational skills, principally because it does permit students to go at their own pace and because the clarity of instructional components facilitates identification of areas where individual students may need extra help.

As noted earlier, students attend the Center on a week-about schedule. The advantage of this schedule is that students "work" a full work week. To the extent possible, instruction is organized to simulate real work. In contrast with the typical schedules of vocational courses in a comprehensive high school, this approach allows students to experience the full range of tasks associated with a particular job and adapt to the rhythm of working a full day. For example, in food service students do planning, preparation, serving, and cleanup. In a regular high school, students attend shops for only part of the day and thus may not be able to complete a full sequence of activities in any one day.

All of Randolph's programs are organized around shops or labs; each has varying amounts of classroom instruction depending on the amount of theory and book work required for a particular course. High tech electronics and automotive and the health cluster spend considerable time on theory, as one

might expect. Considerable theory is also infused into the more traditional trades programs as well. The electricity class, for example, was learning Ohm's law.

Everywhere we looked, students were cheerfully and productively engaged in their work. Students in the baking program were cleaning the equipment that they had just used to produce a batch of the famous Randolph cinnamon bread. The school sells this product commercially and also bestows it on visitors. Food service students were waiting tables in the staff dining room; others were preparing elaborate hors d'oeuvre trays for an event that they were catering the next day. While the auto shops look like auto shops in vocational schools and garages everywhere, the automotive high tech program had some very sophisticated diagnostic equipment and a new hydraulic bench containing one of the new generation of modular construction cars. (The teacher had been given release time to attend a General Motors training course on this equipment.)

Cooperative Education[4]

Administrators and staff at Randolph believe that cooperative education, typically called co-op, is a critical component of secondary vocational education for urban youth. Students in co-op are able to learn the worksite and become comfortable there. The benefits of co-op become apparent when they are seeking full-time jobs, because they are much more confident--even cocky--about their ability to land the jobs they seek. The principal would like to do a study of the contribution of co-op to breaking the cycle of poverty among low SES vocational students and use the results to tailor a program specifically for these students.

The school's co-op coordinator, who is also an electronics teacher, administers the program and supervises all participating students. He develops jobs through typical avenues, including monitoring the want ads, and then cultivates employers. He commented that this aspect of his job is easy; in fact, he has more jobs available than he has students to fill them, primarily because employers are so pleased with their Randolph students that they request new students each year and also call the school when other appropriate jobs become available. The co-op coordinator visits each student at the worksite a total of 10 times during the year and teaches the classroom component of the program, which students attend bimonthly. Additionally, he maintains a very thorough, automated information system on the students and their placements.

Co-op is not available to everyone. Students must have a B average in all coursework, including their academic courses, to be eligible. Most of the jobs are "co-curricular," which means that two students fill one job since students attend their vocational program every other week. Students and employers each enter into contracts that cover the specifications of the job. For students, these include attendance and punctuality, grade

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[4]"Cooperative education" programs combine paid work experience in the occupations students are training for with classroom activities that focus on job-related skills and behaviors.

requirements, submission of salary and work status information, attendance at the co-op class, completion of required assignments, and appropriate job behaviors. This agreement must be signed by the student's parent.

Employers agree to complete periodic student evaluations, including submission of a grade. The following is an excerpt from an employer evaluation:

> [The student] has progressed from the issue operation and is now assigned to the receipt function. This is one of the most important areas in our organization. A receipt improperly processed is an asset not accounted for, we therefore assign our most competent personnel to this operation. No other student aide has been assigned to the receiving function. His training at Randolph has prepared him for this facet of the warehousing function.
>
> [The student] is quick to learn new methods and procedures and is most flexible when it comes to work assignments. He willingly accepts transfers within the branch to alleviate backlogs. [He] has been an asset to the Storage Branch since the first day of his employment and his value increases as he applies knowledge gained on the job.

The student received an A.

At the time of our visit, 64 seniors were participating in co-op. Twelve were working as plumbers, eight as carpenters, six in food service, and three as dental assistants. The highest hourly wages were $6.50 for each of two plumbers, $5.25 for a student working in a restaurant, and $5.00 for a dental assistant, electrician, auto body worker, and carpenter. Fifteen of the students were receiving minimum wage ($3.35 an hour). Most of the worksites were in small businesses, although several co-op jobs have been developed at such locations as the Philadelphia Naval Shipyard, the zoo, and Hechinger's, a large hardware and building supply chain.

In addition to the seniors, during the last report period of the year juniors are permitted to start co-op if they have the required coursework average and recommendations from their shop teachers. The rationale is that these students will then have a job during the summer and be able to continue that job through their full senior year. This arrangement eliminates the orientation time that is otherwise necessary at the beginning of the senior year and provides a substantially longer framework for the co-op experience.

Extracurricular Components

Since it is a shared time facility, Randolph does not have intramural or interscholastic sports, music groups, or most of the student clubs that form an important part of students' high school experience. Students who participate in these activities do so at their home schools. According to one of the vice principals, the absence of extracurricular activities is one of the few drawbacks of a skills center.

To some extent this lack is compensated for by the presence of very active Vocational-Industrial Clubs of America (VICA) and Health Occupations Students of America (HOSA) organizations, which are enthusiastically supported by all administrators and faculty at Randolph. Students are encouraged to submit projects to competitions; one student had recently received a national Student of the Year Award from HOSA, and her picture was posted in numerous locations around the school. Automotive students, who had recently placed well in the citywide competition, proudly pointed out the awards that were displayed in their classroom.

Integration with the Academic Program

Because Randolph is a shared time school, students take academics in their home high schools and vocational education at the Center. This arrangement obviously reduces the likelihood that much collaboration between academic and vocational teachers will occur informally or even in a structured way. While the advantages of integration between academic and vocational programs were acknowledged by respondents at the Center, such integration is not for the most part realistically feasible, particularly when students come to Randolph from a large number of comprehensive and parochial high schools throughout the city. In fact, while defending the importance of vocational education for urban youth, one administrator acknowledged that these students also need basic education. However, he believes that students should have a good grounding in basic skills by the end of the ninth or tenth grade, and if they do not, keeping them out of vocational education in their last two years is not likely to increase their academic achievement unless "something radically different is done." He and others at Randolph argue that, for such students, vocational education can serve as a vehicle for teaching (or remediating) basic academic skills.

As a case in point, the new electricity teacher (who had come from industry and was in the process of taking his teacher certification courses at night) commented that he had found it necessary to teach a considerable amount of math in order to prepare his students for their skill training. Other courses (e.g., the high tech automotive program and some of the health occupations) have increasingly infused theory into the hands-on instruction of the curricula.

Perhaps most interesting in this connection is a new high tech electronics course recently initiated under a school pairing arrangement with one of the comprehensive high schools and one of the parochial schools. In part conceived as a "magnet" program to attract brighter students to vocational education,[5] the program is organized to ensure that students who are interested will have the academic training thought necessary for success in the vocational courses. Thus the academic curriculum has been designed

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[5]Additionally, it tends to combat the problem of home school reluctance to send students to Randolph by having students enroll in the paired comprehensive school as ninth graders. The strategy is attracting students to the comprehensive school, which has its own enrollment problems, as well as facilitating their enrollment at Randolph as tenth graders.

collaboratively between the vocational teachers at Randolph and academic faculty at the two participating schools. It includes requirements in algebra, geometry, trigonometry, physics, and chemistry. Additionally, selection criteria include minimum performance levels on standardized reading and math tests. Fields available for study at Randolph in this program include telecommunications, computer electronics, biomedical instrumentation repair, programming, and robotics. The early experience with this new approach has led Randolph administrators to make plans for implementing additional programs, particularly in health occupations, with other high schools.

Special Programs

The Center operates several programs for special needs students and a unique counseling program for all seniors. An after-school program for limited English proficient (LEP) students provides four language tutors, each proficient in a different language, for students enrolled in an extended-day cosmetology course. In addition to regular instruction, the LEP students were working on computers with a curriculum that teaches English through cosmetology subject matter. As we watched, one student used the computer to learn proper uses of tools--hairbrush, comb, scissors--while simultaneously mastering the English vocabulary for tools and tasks.) Tutors assist the instructor when the language barrier impedes communication and also work individually with students to improve their English proficiency. According to the instructor, the only difference between this program and the regular day program is that she spends more time on theory and does somewhat more review of skill applications, primarily to help students achieve proficiency in English.

Randolph also operates two special programs for handicapped students. One is a building sanitation program for students who are classified as trainable mentally retarded. Intended to facilitate competitive employment for persons who, in the past, would likely have been able to work only in sheltered workshops, the program teaches "mop and buff" skills, including primarily cleaning and simple maintenance. Although actual counts were not available, the school's full-time special education coordinator stated that many of these students have been able to obtain competitive employment as a result of their training.

The other special education program is an assembly and packaging program for more severely handicapped students. In some respects, this program is similar to the type of work that traditionally occurs in sheltered workshops (e.g., packaging plastic utensils and napkins for sale to airlines). It is likely that most of these students, if they work at all, will be employed in sheltered situations, although one of the goals of the program is to move students into higher level skill training such as the building sanitation curriculum. Since these students are receiving more educational and training services under P. L. 94-142 and Perkins than was available to them in the past and are therefore potentially able to function at higher levels, the special education coordinator believes that at least some of them will be able to move into more independent levels of work.

In addition to these programs, three shop training assistants (STAs) are assigned to the school: an additional STA, who "floats" among several schools, is currently based there as well. These persons, who are funded under the Perkins set-aside for handicapped students, work with mainstreamed students in the shops to provide extra instructional and other support as needed. (Handicapped students who are making a "C" no longer receive these services.) The STA-student ratio is 1 to 25. Each mainstreamed student has about 45 minutes per day with an STA, and students also participate in small-group tutoring sessions. STAs submit weekly reports to the special education coordinator on student activities, progress, and problems. It is interesting that administrators at Randolph believe that handicapped students are less stigmatized at the Center than they are at the home comprehensive high schools. Perhaps this is one explanation for the large number of handicapped students who attend the school.

In the past year or two, Randolph has agreed to receive small groups of students from some of the special residential schools for small periods of time at the Center. These students are likely to be severely or profoundly handicapped. The arrangement is part of the system's response to increased federal and advocacy group support for community integration of severely handicapped persons. Generally eight students come to the school with two instructors, spend some time in a shop, and then eat lunch in the school cafeteria. Thus, they achieve some level of integration with nonhandicapped students as well as exposure to work situations.

Another program, designed and implemented at Randolph,[6] is a directed group counseling program for seniors. The course meets for one hour per day for a week and covers a variety of life skills and employment-related topics. Included are units on (1) economic literacy, including financial needs anticipation, child support, insurance, and the like; (2) life skills, such as voter registration; (3) advantages and disadvantages of jobs in civil service, the private sector, and the military; and (4) procedures for enrolling in postsecondary education, including financial aid opportunities. The latter segment includes a field trip to the Community College of Pennsylvania (CCP). According to one of the Center's two guidance counselors, Randolph is the only high school in the city that takes students to CCP as part of their preparation for high school graduation. As part of this program, seniors are required to develop a plan to guide their transition from Randolph to jobs or postsecondary training. Using this plan, the guidance counselors then monitor each senior's job search or postsecondary enrollment activities until the students have graduated.

The designers of the guidance program have refined it in response to emerging student needs, and they are very proud of the results. According to the principal, the program was the "brain child" of the counselors, who saw group counseling as an efficient and nonthreatening method for imparting some of the skills and information needed for successful transition into the

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[6]The guidance counselors at the Center have published a monograph describing the program: Gordon, J. and E. Rogers, "F.O.R.C.E. (Facilitating Occupational Readiness [through] Counseling Efforts): A Directed Program of Group Counseling and Guidance," Pennsylvania Personnel & Guidance Association Journal, Fall 1977, Vol. 5, No. 1, 37-43.

adult world that many of their students were lacking. The counselors, in turn, praise the principal for encouraging them to develop their ideas. Implementation of the program was complicated by the view of the teachers' union that working with groups of students constituted teaching and thus was not allowable under the union contract. That difficulty was resolved, and the program has become institutionalized at Randolph, but it has not been adopted by any other schools in the system.

Outcomes

In February 1986 the governor of the Commonwealth of Pennsylvania paid a visit to Randolph. In his press release, he noted that the school is ". . . considered to offer one of the best secondary vocational computer programs in the state, [and] . . .enjoys a 79.4 percent placement rate among its vocational education program graduates. . . ." This year, the principal believes that the placement rate will be a little higher, around 82 percent, and the overall target is an 85 percent training-related placement rate. The guidance counselors indicated that, on average, about 45 percent of graduates enter jobs, about 45 percent go on to postsecondary training, 8 percent enter the military, and the rest "have no plan." It may be that this information is based on the plans students develop in their senior years rather than on follow-up surveys of graduates.

The state used to do an annual survey of placement and postsecondary enrollments among vocational program graduates (probably in response to the requirements of the now-defunct VEDS). This state survey is no longer done, and while Randolph has very good computerized data on student demographics, co-op participation, and other types of information, it was not apparent that systematic follow-ups of their graduates are conducted. There is, of course, a wealth of anecdotal information, provided by former students and the siblings of former students, through informal contacts with employers, and from other sources.

## V. The Teachers

Randolph's staff includes the following:

- principal and 2 vice principals
- 4 cluster coordinators
- 1 special education coordinator
- 2 guidance counselors
- 52 teachers
- 5 nonteaching assistants
- 4 shop training assistants (paraprofessionals)
- office support staff

Most of these persons are "long termers" who have been at the school since it opened in 1975. Very few persons have voluntarily transferred out. (One teacher who did transfer returned after two years.) A few staff have been lost through reductions in force, although when programs have been closed, some of these have changed jobs in order to stay at the Center. One of the

persons currently in charge of the school's automated information system, for example, was formerly an instructor in the abandoned geriatric care program. A small number of teachers have retired or left because of illness.

The principal, a former high school science and math teacher who has been in the system for 30 years, does not hold certification in vocational education but has worked in the area for many years. Teachers are required to have certification in vocational education. The new electricity teacher, for example, came from industry and is in the process of taking his teacher certification courses at night. The co-op coordinator, who has an engineering degree from Temple and worked at Boeing, took 36 credits for vocational certification and 30 for certification as a co-op teacher. In effect he has a master's plus 30 hours. He moved from industry to education when his neighbor, knowing that he was teaching an FCC class, asked if he wanted to get involved in an adopt-a-school program that Boeing had undertaken. He tried that and has not returned to an industry job, although he does run a small electronics business, mainly, as he commented, "to keep my son employed."

The cluster coordinators have master's or Ph.D. degrees, mostly from Temple. One has been on the Temple faculty for 10 years and continues to teach in the university's health occupations department at night.

Because most of the teachers have had industry experience, they define their instructional roles somewhat in terms of a line supervisor. They simulate real working conditions in the shops, and treat the students as peers. All of the teachers interviewed expressed very high enthusiasm for their work, commitment to vocational education at Randolph, and admiration for the school's administration. The principal treats faculty as professionals and provides the support they need to do their jobs effectively.

One of the food service instructors literally bubbles with enthusiasm about his program. He was able to describe in detail the placements, and often the salary levels, of students who had graduated from that program over the past few years. Many have gone on to chef's schools (including the Culinary Institute of America), and some recent graduates have already gotten big promotions in the kitchens of some of Philadelphia's most prestigious restaurants. One is second chef at Warwick and earns $24,000 per year.

According to a cosmetology teacher, about three-fourths of her graduates enter the field. (The rest take cosmetology for personal use reasons.) Her students have high pass rates on the state exam, though not always on the first try, and most are able to enter beauty parlors as operators rather than having to start out as shampoo workers. Many make as much as $15,000 per year out of school, and some end up making a substantial living in their chosen field.

The new electricity teacher seemed a bit overwhelmed with the magnitude of activities required of a beginning teacher, including developing lesson plans, trying to make do with equipment and supplies that are not as up to date as those he was accustomed to in his former job as a construction electrician, trying to think of ways to teach his students the math they

need--and convince them they need it--to succeed in their courses. At the same time, he was excited and genuinely happy that he had decided to take up teaching. He will likely become a good teacher.

Probably an important factor in the high morale and effectiveness of the instruction provided by these teachers is the relatively low student-teacher ratio. The state requires that the ratio in vocational education not exceed 24:1. Some of the shops at the Center can't accommodate even this many students. For example, the capacity of the dental assistant and medical records programs is 15 students. Some of the shops have 18:1, some as low as 6:1. Overall, the schoolwide average is around 10:1. This means that there is time for individualized instruction and support as students need it. It also facilitates the climate of sharing and cooperation that characterized all the shops we observed during the visit. Students obviously feel comfortable with these teachers, which does not result in rowdiness or lack of attention to their tasks, but rather appears to create an environment where good teaching and good learning can occur.

It is also clear that teachers invest themselves and their personal time in the school and their students. The four high tech instructors were observed deep in a conversation in their shop around 4:15 p.m., long after the end of the school day at about 2:30. The co-op coordinator gladly remained long after closing to describe his program, his students, and the excellence of the school.

Perhaps most striking is the fact that the visit to Randolph occurred during an atypical time. Students were taking the trial vocational tests in the morning, and the afternoons were teacher planning days, so the students were leaving. Further, on one day there was a fire that had required evacuation of the building not long before we arrived; on another there was a crisis with a student with emotional problems. None of these events seemed to intrude into the school's atmosphere, however, and while individuals around the building were busy handling them, the overall sense of calm and orderly purpose in the shops and classrooms prevailed.

## VI. The Students

Administrators at Randolph believe that high-quality, occupationally specific vocational education is a particularly important component of the overall educational offerings of large metropolitan school systems. A significant proportion of the secondary students enrolled in the Philadelphia public schools will not continue their education past high school, and these students need to acquire the occupational and employability skills that will enable them to succeed in the labor market. As one respondent commented, "secondary vocational education <u>works</u> when a student does not follow the welfare tradition of his family. To break this cycle, we need good training for high-paying occupations; and we need to teach students how to manage effectively, not only in their first job but in future jobs as well."

Students who attend the Skills Center reflect a wide range of demographic characteristics, attitudes, and aspirations. The fact that they come from public and parochial schools throughout the city means that

Randolph is not strictly a "typical" inner city high school; but as the following profile suggests, the student population is generally one for whom good training for good jobs is very important.

## Student Characteristics

The fact that Randolph is a shared time center whose course offerings are limited to vocational education has important implications for the types of students who attend. According to most of the administrators and teachers interviewed, guidance counselors, teachers, and administrators at feeder schools tend to discourage brighter, potentially college-bound students from enrolling in vocational education.[7] In fact, in the Center's early years, many administrators in the city's comprehensive schools tended to view it as a good "dumping ground" for less talented and more difficult students. Randolph staff have had to overcome this stereotype of vocational education as the appropriate placement for the "dummies" of the system. Additionally, girls are often encouraged to enroll in business programs at their home schools rather than attending Randolph in other programs. Further, district policy specifies that students cannot enroll at a skills center if their home comprehensive high school offers a particular vocational curriculum. This requirement affects enrollments in auto mechanics and some other programs. Finally, depending on availability of the program they want, students usually attend the skills center nearest their home school.

### Sex and Ethnicity

Of the 800 students (unduplicated count) attending the Center during the 1986-87 school year, 65 percent (n = 509) are male, and two-thirds are black. As shown in Table 2, the racial/ethnic distribution differs markedly by feeder school type. Overall, three-fourths of the students are enrolled in public schools. The mostly white parochial schools contribute most of Randolph's white students. The predominantly black public schools send 85 percent of Randolph's black population. While there are currently very few Hispanic or Asian students at Randolph except in the bilingual extended day program, these proportions are reportedly increasing each year.

### Socioeconomic Status

According to one administrator, from 25 to 30 percent of the students at Randolph are from poverty-level families; about 30 to 35 percent could be

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[7]This tendency has been exacerbated by recent declining enrollments in the Philadelphia public and parochial schools; more and more frequently, home schools are competing to retain students in order to avoid losing faculty and staff.

classified as lower middle class; and the remainder are middle class.[8] Only a very few students at Randolph are from upper middle class backgrounds.

Table 2

Distribution of Randolph Students by
Race/Ethnicity
School Year 1986-87

| | Overall | | Public | | Parochial | | Private | |
|---|---|---|---|---|---|---|---|---|
| | n | % | n | % | n | % | n | % |
| Black | 518 | 66 | 438 | 80 | 41 | 23 | 16 | 89 |
| White | 180 | 23 | 47 | 9 | 126 | 70 | 2 | 11 |
| Asian | 48 | 6 | 46 | 8 | 1 | <1 | -- | -- |
| Hispanic | 30 | 4 | 16 | 3 | 11 | 6 | -- | -- |
| Other | 3 | <1 | 2 | <1 | -- | -- | -- | -- |
| Total | 779 | 99 | 549 | 99 | 179 | 99 | 18 | 100 |

Grade Levels and Retention

Students begin their vocational programs at Randolph in the tenth grade. The following is the distribution of the 1986-87 students by grade:

| Grade | Number | Percent |
|---|---|---|
| ungraded | 93 | 12 |
| 10 | 131 | 17 |
| 11 | 307 | 39 |
| 12 | 210 | 27 |
| postgraduate | 38 | 5 |
| Total | 779 | 100 |

Most of the ungraded students are enrolled in a self-contained special education program. The postgraduates are primarily cosmetology students who were unable to complete the number of hours required for state licensing during their regular program because of their academic graduation requirements. These students are accepted so long as the program has enough slots available. If they are city residents, their attendance is free.

[8]One respondent reported his perception that relatively few upper middle or upper class students in the Philadelphia area attend public schools at all. Those who qualify for some of the very high-status specialty schools like Girls High School or the Science and Engineering High School may be in the public system, but overall students in that stratum tend to enroll in private schools.

According to district officials, the districtwide average daily attendance in the Philadelphia schools is 67 percent, and the dropout rate is 9.8 percent. At Randolph, average daily membership runs between 83 and 85 percent, considerably higher than the district as a whole. However, according to school administrators, the dropout rate for the school is between 10 and 12 percent, which is higher than that reported for the school system as a whole. This discrepancy may well be an artifact of the Center's week about schedule: if students are having to repeat academic courses they need to graduate, they may have to drop their vocational program because of scheduling difficulties. Thus these students may not be leaving the system altogether but rather returning full time to their home schools.

Student Achievement Levels

As noted earlier, when Randolph first opened, the feeder schools tended to direct their lowest achieving, often disaffected, students to the Center. This pattern has declined over time, in part because administrators at Randolph have strongly resisted accepting students who they believe cannot succeed in the program and in part because these students are typically failing so many of their academic courses that their schedule does not permit them to attend the Center. While comprehensive data on the achievement levels of the students attending the Center were not available (these records remain in the students' home high schools), the administrators interviewed concurred that the average achievement level on standardized tests is around the 30th to 35th percentile.[9] The range is from the 16th to 55th percentiles. The exception is the new high tech program, for which entrance criteria have been implemented. These students average from the 55th to the 75th percentile.

Nontraditional Enrollments

According to several respondents, guidance counselors, instructional staff, and other school personnel encourage nontraditional enrollments but with limited success. One respondent commented that sex stereotyping is largely parentally determined, and the school can do little to change these attitudes. Even students who want to enter nontraditional fields are discouraged or forbidden, primarily by parents but also by advisors at their home schools. For example, one girl who wanted to attend Randolph to become a plumber was told by her home school counselor that it was against the law for girls to be plumbers; she remained at her home school in the business program.

Nevertheless, there are some nontraditional enrollments. Twenty-two percent (n = 59) of the female students are enrolled in traditionally "male" occupations, with five concentrating in welding (perhaps in part because one of the welding instructors is female) and 12 in biomedical electronics. There are nine girls in electrical and nine in telecommunications. The

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[9]For example, one of the parochial feeder schools groups students into five tracks; the students from that school who attend the Center are from tracks 5 and 4, although a few track 3 students have entered the new electronics program.

proportion of nontraditional enrollments among male students is much lower--only three percent, or 17 students in all. These students are enrolled in fashion design, cosmetology, the dental assistant program, and other "nontraditional" curricula.

Special Education Students

Twenty-eight percent (a total of 225) of the students attending Randolph in 1986-87 are receiving special education services; this is a very high percentage relative to national averages. About two-thirds of these students are enrolled in regular vocational education courses. Eight are in a special building maintenance course that trains for "mop and buff" jobs. The remainder are in a self-contained packaging curriculum; most of these students will end up working in sheltered workshops, although some may eventually achieve competitive employment.

The most frequent handicapping conditions of the special education students are (1) learning disabilities (39 percent), trainable mental retardation (26 percent), educable mental retardation (12 percent), and severe emotional disturbances (12 percent). There is no particular pattern in their vocational concentrations; as the school's fulltime special education coordinator pointed out, these students are in "all the shops," and are not particularly discernible from the rest of the students. Seventy-four percent of graded students are passing their courses.

In summary, then, while Randolph is not, strictly speaking, a stereotypical inner city high school, the composite profile describes a population that includes a fair number of students who have traditionally experienced difficulty in educational attainment and labor force participation. Over two-thirds are minority; a high proportion are handicapped; about one-fourth to one-third are from low-income families; on average they achieve in the lower third on standardized achievement tests. One indicator of the effectiveness of a school such as Randolph is the extent to which such students select the school and flourish there.

Hopes and Aspirations

There are a number of potential disincentives that may affect students' decisions to enroll in vocational education in Philadelphia, as well as some that might be expected to affect decisions about choosing Randolph in particular. According to most respondents, the home schools actively discourage their brighter students from selecting vocational education at all; thus such students must be highly committed to vocational education if they decide to enroll. Further, declining enrollments systemwide have meant that even lower achieving students (those for whom vocational education may have been considered appropriate in the past) may be discouraged from enrolling in vocational courses that are not available in their home schools.

A second factor that might be expected to discourage students from attending Randolph is the school's week-about scheduling. Students attending the Center must be "block rostered" in their academic courses.

Depending on the number of students at a particular comprehensive high school who are attending the Center, some individual students may not be able to enroll in some desirable academic courses and still complete their vocational program. In some instances students who are failing in their academic work may have to drop their vocational studies in order to complete enough academic work to graduate.

Perhaps most important is the question of whether the week about arrangement disrupts the academic work of students taking a vocational program at Randolph, particularly to the extent that the discontinuity implicit in such a schedule might be detrimental to achievement in both the academic and vocational aspects of their studies. In addition to these issues, the week-about schedule may be difficult for students involved in extracurricular activities at their home high schools and may cause difficulties in terms of friendships and other social activities associated with the high school experience.

If any of these issues constituted problems for the students, they were not telling. One parochial school carpentry student, who attends on an alternating day schedule rather than week about, did confess that sometimes he forgot which school to go to, but otherwise none of the 15 or so students interviewed perceived attendance at the Center to be problematic in terms of friendships, completing academic requirements, or scheduling.

One food service student, a handicapped student with a visual impairment, had enrolled at the Center because he loves cooking; his brother had gone to Randolph and so he felt comfortable choosing the school. Currently working at a downtown restaurant on co-op, he hopes to attend restaurant school next year.

A junior cosmetology student had decided on cosmetology because her aunt is a beautician. She chose Randolph on the recommendation of friends; since she has been in the program, she has decided that she wants to own her own business. Thus, she is planning to go to college (probably to Temple in business management) and then go into business for herself.

One of the students in the new high tech electronics program had decided on the program at the end of eighth grade. Therefore, he filed the required formal transfer papers so that he could enter Roxborough (the affiliated comprehensive high school) in the ninth grade (he would have gone to Germantown) and is in his second year at Randolph. He chose this program because of his belief that it is "a more open field, with more opportunities." He will likely go to technical school, possibly to a four-year college.

Thus most of the students have had to make some choices in order to enroll at the Center. At the same time, many of them have refined their plans over the course of their studies at the Center. Most of these refinements include decisions to enter postsecondary training, and while not all graduates go on to school, it is possible that there is a trend toward this option.

## VII. Summary Themes and Indicators of Success

The Randolph Skills Center is a clean, orderly, well-waxed school that, by most of the criteria typically used in research on effective schools, clearly fits the definition. The school is achieving high training-related placement rates (or postsecondary enrollments) with a student population that faces many of the traditional barriers to employment characterizing inner-city residents. These include a large proportion of minority students with relatively low SES and low standardized test scores. Additionally, the school enrolls a very high proportion of handicapped students, most of whom are faring well in mainstream programs with focused supportive services.

In some sense, Randolph had a "leg up" from the outset. The school was established in an era of relatively high resources, and strong commitment to secondary vocational education. Public school enrollments were high at the time. As the first skills center started in the city, it benefitted from very strong commitment of the system's Central Office, which had planned to establish five centers throughout the city. As the first, Randolph very likely gained from the early enthusiasm for the concept; this inference is borne out by the system's commitment of staff and travel funds for a long planning and implementation phase prior to the school's opening in September 1975.

It is possible, but unlikely, that the selection of the school's three top administrators was accidental. One would imagine that, given the system's commitment to succeed with the skills center approach to secondary vocational education, the selection of administrators was very carefully decided. It is interesting that these administrators were not vocational educators but rather academic teachers. Nevertheless, it is difficult to imagine a higher commitment to the school and to secondary vocational education among trained vocational educators than these administrators exhibit. They are all three still at Randolph, although one of the vice principals is currently working toward a principalship of his own. The school's principal has turned down offers that would have represented career advancement within the school system; he is not yet through with what he wants to do at Randolph.

Now, 12 years later, although the environment has changed, the school is still excellent. Enrollments have declined; resources have shrunk; secondary vocational education is under attack. Randolph has rolled with all these punches and emerged relatively unscathed. Following a natural law of survival, it has learned the trick of rapid adaptation to a new environment but without abandoning any of its standards and principles. It is, in short, an exemplary provider of vocational education.

WRIGHT VOCATIONAL COOPERATIVE CENTER
Buffalo, Minnesota

Richard N. Apling

## I. Overview

### The Setting

Located approximately 30 miles west of Minneapolis/Saint Paul, the Wright Vocational Cooperative Center (WVCC) is an area vocational center that serves 10 surrounding school districts through a shared time arrangement with area high schools.[1]

Despite its rural appearance, only six percent of Wright County's overall economy is dependent on agriculture. Even the farm economy is not as depressed as in other areas of Minnesota. Support for education is strong; for example, Maple Lake just passed a school levy by a vote of three to one. The larger towns like Buffalo and St. Michael, are bedroom communities. Smaller communities in WVCC's consortium are rural, farming communities. Two of the participating communities illustrate the range of communities and schools served by the WVCC program. Maple Lake's economy is 50 percent agricultural; it is the smallest district in the consortium, with 350 students in grades 7-12 and approximately 50 to 60 students participating in the WVCC program. Buffalo is a middle-class, suburban community with no industry. Buffalo High School is much larger, with 1,200 students in grades 9-12. Generally speaking, the area's economy is good.

The Wright Center was built in 1972 but looks newer. The main structure is a 30,000 square-foot facility built on a cement slab with cement block walls and a brick facade. Constructed inexpensively ($10 per square foot in 1972), it is basically a no-frills building. The surrounding area is well landscaped, with a circular drive in front for buses, limited parking on the side for faculty and a few visitors (there is intentionally no space for student parking), and a few outer buildings. If the Center had no sign and was not adjacent to a Buffalo High School (one of the largest participating schools), one might think that it was a plant for some light industry.

Most of the vocational programs offered at WVCC are housed in the main structure. The shops are on the periphery of the building and are large, well lit, and clean. The "black glove" shops--construction, welding, machinery, and auto mechanics--are clustered on the left and rear of the building. The "white glove" shops--graphics, medical occupations, child care, and business--are mostly on the right side of the building. The Model Office and Model Store, which are simulated businesses, occupy the center. The central office area, including the director's office and conference room, is in the front of the building. A few activities are conducted in

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[1]Annandale, Delano, Becker, Rockford, Big Lake, Buffalo, Howard Lake-Waverly, Maple Lake, Monticello, St. Michael-Albertville

small adjacent buildings. The horticulture classes, for example, are held in classrooms attached to two greenhouses. The classroom and television studio for media occupations are in a separate building, as are the electronics classes. The shop for construction trades is located in the main building; these classes also work on the model house, which is nearing completion in an area directly outside that shop. Since the Center provides only vocational education courses, it has no facilities for activities such as meals or physical education.

Philosophy/Mission/Goals

According to the WVCC student handbook, the Center has three overall goals: "exploring opportunities of a given occupation, preparing for postsecondary training, and providing skills necessary for immediate employment." According to most of the teachers interviewed during the visit, the Center's main goal is to improve students' career choices by giving them extensive exposure to one or two occupations. For example, the medical occupations instructor said that students who complete her course "have a much better idea what it means to be an RN. [As a result] they are much more likely to make a valid career decision."

Students may enroll at the Center as juniors or seniors to take one course per year. Some students come back the following year for another course, thus enabling them to explore different occupations or skill areas within occupations. A few students take the same course twice and work as teaching assistants and on independent advanced projects. There is no sequence of courses, and few courses at Wright have prerequisites. While some students have the skills to pursue a trade after completing a one-year course, most instructors believe that further training at one of Minnesota's area vocational technical institutes (AVTI), at a four-year institution, or through on-the-job training is necessary for entering a given occupation. Thus, most instructors encourage their students to continue their training.

The organization of vocational education as essentially exploratory is the chief reason that the Center's students are thought to need further training to be job ready for most occupations. Many instructors believe that the typical year-long course provides good foundations but does not provide enough instructional time to prepare students for immediate job placement. For example, the electronics instructor pointed out that, "I can't turn out a technician here. The AVTI can because they have the students for six hours a day for two years. I only have them for one and one-half hours a day for one year." The instructor in machine trades also sees his program as feeding into further study at an AVTI. "We're only touching the surface," he noted. Based on his experience in the field, he teaches the basics. "The advanced skills are taught at the postsecondary level and in industry. A company will train [the students] on the specific machines they have." Further, these instructors understand and expect that some students will take their courses and decide that the occupation is not one they want to pursue, a legitimate outcome of exploratory vocational education.

Another purpose of training at Wright is to provide essentially avocational or personal use skills. The horticulture teacher expects some

of his students to develop horticulture as a hobby. Many other skills taught at Wright--welding, construction, auto--are applicable on the farm.

WVCC's philosophy of providing exploratory vocational education is well understood by teachers and students, by administrators and counselors in the home schools, and by parents of students attending the schools. For example, the principal and superintendent of one of the smaller participating districts said they would like to see even more emphasis on exploration, with semester, rather than year-long, courses but have been told that courses must be year-long and two hours per day in order to be funded. Parents apparently have no complaints about the school or its explanatory approach to vocational education. In a recent survey in this community, parents ranked training for immediate work as a very low priority for their schools.

School Climate

WVCC is a clean, orderly school, with teachers and students actively engaged in teaching and learning. In most classes, students work independently or in small groups on projects, with instructors providing individual help. In only two of the 12 occupational areas were instructors giving lectures: auto mechanics and electronics. In machine trades all the students were working at milling machines, while the instructor worked with one or two students. In construction trades, many of the students were working independently on the house they are constructing, giving the appearance of a construction site rather than a schoolroom. The construction trades teacher was back in the shop in the main building working with other students. In each instance students were on task and carrying out assignments with little direct supervision from instructors. This format permits individualized attention and makes it possible for students to exercise responsibility and independence, traits that are valuable on the job.

## II. The School and the Community

Advisory Groups

Although the Center overall does not have a formal advisory group, the director reported that the Center obtains advice informally from area businesses and industries. In addition, each vocational area has an advisory group with whom instructors meet at least twice a year. The director encourages these formal meetings as well as informal contacts between instructors and relevant employers: "I like my people to stay in touch with business because that's where the jobs are." As a follow-up to some of these contacts, the director reviews the minutes of the advisory group meetings.

Instructors at WVCC pointed out that formal and informal contact with business and industry leaders is important to them in structuring and restructuring what they teach. The graphics instructors--whose current advisory board consists of an AVTI instructor, a photographer, an artist, and print shop owners--seek information on what is relevant and current in

the graphics field. They have determined, for example, that many potential employers still use traditional printing methods and therefore continue to concentrate on more traditional graphics methods, as well as covering some aspects of desktop publishing.

The advisory board for machine trades includes the head of production for one manufacturing firm and a company president. The instructor meets formally with the board twice a year and informally two or three time each month. He said that the board influences his program. "If I or my advisors feel that we should stress something, that's what we stress." In addition, members of his board provide him with raw materials such as steel scraps that he uses in his classes.

Employers

Employers we interviewed in the communities surrounding WVCC have a positive attitude toward the center and claim that they often hire program graduates. Through serving on advisory boards, employers come to know instructors and the quality of their programs. These board members become primary employers of WVCC graduates. For example, advisors to the graphics program have indicated that they hire graduates of that program "because we know they know graphics." Similarly, advisors for the machine trades programs often call the instructor when they need machinists. The president of one company, who serves on the board, "would take every kid they produce in the machine area."

Farmers are also very supportive of the programs at WVCC because students can learn farm-related skills there. According to the welding instructor, "Farmers see us as a real asset, especially for boys. The skills they learn in welding, machine trades, or construction can be directly applied on the farm."

Parents

As previously noted, parents in the 10 communities served by WVCC tend to support the center's exploratory philosophy. At the same time, we found no evidence of active parental involvement in the Center such as fund raising, nor did we find that parental support was thought to be a fundamental cause of the Center's success.

## III. District Structure of Vocational Education

The superintendent in one of the larger districts of the consortium views WVCC as doing a good job in providing vocational education options that his own high school does not offer. When he became superintendent about 10 years ago, he looked carefully at all the district's programs, including participation in the Wright Center. He decided to continue participation in the Center, because he believed that program benefits justified the costs. A special education consortium (from which he withdrew his district's participation) "spent money like water" and seemed to be

administratively top heavy, whereas the number of administrators at the Wright Center seemed reasonable.

As this anecdote illustrates, participation in secondary-level vocational cooperatives in Minnesota is voluntary. The chief advantage of such organizational arrangements is that the pooling of resources across small districts enables participants to offer a broader range of vocational courses, and more and better equipment to support instruction, than any individual district can afford. Thus at least in theory, students have access to higher quality vocational education than would otherwise be possible. The fact that the Wright cooperative has survived while other such organizations in Minnesota have failed suggests that the superintendents of the participating districts continue to believe that the educational advantages to their students are worth the investment of funds and time required to support the cooperative.

Decisionmaking/Governance

WVCC is governed by a supervisory board composed of one member selected from each school board of the 10 participating districts. The board meets once a month and convenes special meetings if issues arise. Each member of the board has one vote regardless of the size of the district represented and participating school boards tend to appoint the same members each year. (One superintendent expressed the view that the static composition of the board is a potential problem. "We could use some new blood," he noted.) The board chairmanship revolves each year to a member from a different community, and the Center director serves as the board's executive director.

In general, the governance structure for the Center is analogous to a school district's. Legally, all rules and guidelines that apply to a school board also apply to the WVCC board. The oversight board makes policy decisions much as a school board does for a school district. (The major exception is that the Center's board does not have the power to levy taxes.) The Center director is similar to a district superintendent and is the chief administrative officer for the Center.

In addition to the governing board, the director receives important input into policy and administrative decisions during monthly meetings with groups from the participating school districts. One group is the superintendents from the 10 districts. According to one of the superintendents, the role of this group is advisory, but the superintendents also seek to influence decisions made by the governing board. For example, "if there are course changes, [the director] would want us to pass resolutions to pass on to the governing board.. . . They usually listen to us." The superintendents review information on the Center, including enrollments and general and capital budgets. They also review and comment on any plans for additions or modifications to the building.

Another group that meets monthly is the principals from the 10 high schools in the consortium. The principals' group is important for resolving problems of coordination between the Center and the home schools. For example, this group has been instrumental in working out an equitable disciplinary policy for students at the Center, which has been a difficult

task because each district has somewhat different disciplinary rules. For example, one home school's policy is to suspend a student caught smoking; another views smoking as a minor infraction. Originally, home principals wanted Wright to handle all discipline problems that occurred at the Center. They were finally convinced, however, that the following approach is preferable: the vocational department head handles minor offenses, usually by talking with and counseling the students involved. If the problem is more serious or persistent, the department head informs the home school and the student receives the punishment he or she would receive if the offense occurred at the home school.

A third school-based advisory group includes guidance counselors from the home schools. This group works cooperatively to help solve student problems and coordinates policies between the Center and the home schools. One important role they play is facilitating the course registration process, which requires that 700 or 800 juniors and seniors from 10 schools be registered such that all slots are filled and as many students as possible get the program they want. Each school receives a certain number of slots for the year based on its enrollment. When a school does not use all its slots, the slots are made available to other schools. (For example, both Buffalo and Maple Lake tend to use more slots than they are initially allotted.) The schools preregister their students, and then the counselors from all the home schools "get together and start horse trading to fill all the slots." Compromises are worked out using the general principle that seniors' choices are honored first, except for cases of juniors who want a program such as construction or model office in order to participate in the cooperative education program during their senior year.

The director concentrates on relationships with the governing board and superintendents and delegates many aspects of day-to-day operations to others. He said that he learned this approach from his years of running his own business before coming to Wright in 1971. He sees teachers as experts in their fields and allows them to run their own programs. His philosophy is that "teachers are independent here. They're the boss. If you teach welding, you know more about it than I do." Teachers agree with this perception. The teachers in graphics noted that the director basically says to them, "You're the professional. We hired you as such. We expect you to do it." The machine trades instructor noted that the director's attitude is that "you know what you want to teach and are allowed to teach it." In addition, the director has assigned disciplinary matters to a senior teacher who is a department head. (At an earlier point, he had also delegated liaison with home schools to an assistant director, who visited schools regularly. Since this individual left and was not replaced, there has been very little contact with home school programs.)

Supports and Constraints

The current budget for WVCC is $1,171,000, funded by the state and by contributions from each of the 10 participating districts. No federal funds are used to support the Center. The Center also receives support from local business people on the advisory councils, who provide, for example, some raw materials for shops and some job placements. Less tangible support is

contributed by district board members and administrators serving on the governing board and advisory boards.

Some districts are ardent supporters of WVCC, but others are not. The lack of support by some districts is reflected in their not using all their allotted slots. A superintendent who supports the Center said that one reason some districts do not use all their slots is their distance from the Center. With a one-hour bus ride each way, "it can take four hours for a two-hour block." He also admitted that some school staff may subtly deter students from participation. "There may be some counselors and principals who see it as less than a challenging program, so they don't work very hard to recruit students." The more supportive schools then use the leftover slots. Another supportive superintendent said that "we always use more slots--10 to 20 percent more. All students who want to participate, can." One staff member at the Center noted that, on the other hand, "if [a district doesn't] want a student here, they'll throw up roadblocks."

Relationship to the Academic Program

As an area vocational school, WVCC operates as a "shared time" facility, with students enrolled at the Center taking their academic courses at their home high schools and traveling to the Center for vocational education. As noted earlier, one of the advantages of this type of organizational structure in rural or suburban localities is that participating districts are able to offer their students a broader range of vocational offerings than would be possible individually. At the same time, the fact that academic and vocational courses are taught in different facilities may reduce the likelihood that much coordination of the two components of a student's program will occur.

Although many of the vocational courses offered at the Center have significant math and science components, there does not appear to be much coordination between these courses and the trigonometry, physics, or other math and science courses taught at the home schools. Part of the problem is the difficulty in coordinating the Center with 10 independent home high schools, each of which may be implementing a different academic program. Districts in Minnesota are allowed to create their own curriculum offerings and sequence, and integration of WVCC courses with academics would be particularly difficult under these circumstances.

At the same time, a larger roadblock to coordination than location or variability in academic offerings seems to be a feeling of animosity between academic and vocational teachers. According to our interviews, many vocational teachers believe that their colleagues in the home schools do not see them as qualified to teach academic aspects of their subjects. The teachers at WVCC resent this "second-class citizenship" because they believe they can teach the principles and applications of these advanced subjects as well as the academic teachers in the home schools. Referring to the isolation of teachers at the Center from teachers in her school, one principal observed that "there's very little communication. It's not so much the physical distance [this school is about 10 miles from WVCC] as different mind sets." One vocational instructor said she had no contact with teachers at the home high schools. "The high schools see us as a

threat because of declining enrollment. We're just one more place for their students to go and not be in their classes." Another instructor said, "our teachers are as isolated as they can get. The people at the home schools are fighting for their turf, and many are hostile."

Both the home high schools and the vocational center have been affected by declining enrollment. At WVCC, the demographic trend has been exacerbated by increased graduation requirements in academic areas. The impetus for these increased requirements is the University of Minnesota's intent to raise its entrance requirements in foreign language, math, and science. This development has led some schools in the consortium to change their requirements for a diploma. Even in schools that have not officially raised their requirements, students are beginning to take more foreign language, math, and science as electives. "The irony," according to one guidance counselor, "is that very few of our students go to 'the U.' Most who go to four-year institutions go to St. Cloud State, which has not changed its requirements."

The effect of these course-taking patterns on WVCC has been significant. The Center is losing students--and in some cases its better students--who believe they cannot afford to attend the Center because of real and perceived changes in academic requirements. The WVCC staff collected the following data from the home schools on the 102 students who dropped out during the first semester:

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| Moved or transferred | 13% |
| Returned to home school (needed additional credits) | 60% |
| Graduated early | 3% |
| Dropped out of school | 25% |
| Total | 101% (due to rounding) |

As a result of increased graduation requirements, the director has tried to persuade home schools to grant science and math credit for some of the Center's courses, such as electronics and medical occupations--both of which have large math or science components. After a long discussion with the governing board and seeming agreement, however, one member said, "I'm not going to give more than one-quarter credit," even though these are year-long courses.

Changes Over Time

The main changes at Wright since the school's inception in 1972 have been the growth in number of participating districts, the Center's enrollment, and the variety of course offerings. The cooperative was formed by five school districts in the spring of 1971; two more districts joined later the same year and two more came aboard in 1973. The tenth district joined in 1981. As the number of participating school districts increased, enrollment grew from 468 to approximately 800. The number of course offerings has also grown. Originally the Center offered classes in agribusiness, auto mechanics, business and office occupations, child development, construction, graphics, health occupations, business, fashion

and apparel, sales and marketing, and welding. Today, agribusiness is offered only as a cooperative education program, and other programs (e.g., media occupations) have been added to reflect changes in the area's labor market.

Unique Features

WVCC has continued in operation while many other vocational education cooperatives in Minnesota have failed. Many small school districts formed co-ops for vocational education, special education, and other services in the 1960s and 1970s. When enrollments began to decline and funds for education dropped, many of these co-ops folded. WVCC is one of the few in the state that has survived, at least in part because local administrators believe their districts receive ample services in return for their contribution to WVCC; several mentioned specifically the administrative efficiency of the Center.

Perhaps more important to the cooperative's survival is its governance structure. Although districts contribute resources to the Center based on size, each district has one vote on the governing board. As a result, although the Center is located in Buffalo, and Buffalo passed the original bond issue to build the facility, "It's no longer thought of as Buffalo's. It belongs to all the districts," according to the director. Thus each of the 10 districts has an equal say in determining the Center's curriculum offerings, decisionmaking regarding the allocation of operating and capital funds, and school policies. This equity has fostered the sense of ownership and commitment that have enabled the Center to continue in the face of declining resources and enrollment, changing labor markets, and other problems that face secondary vocational education in Minnesota and elsewhere.

## IV. The Vocational Education Programs

WVCC offers the following one-year programs:

- Media Occupations. The program teaches skills involved in producing video tapes, including sound, script writing, editing, lighting, and video taping in the studio and on location.

- Medical Occupations. Course topics include disease processes, medical terminology, nutrition, personal health, and human behavior. Students have the opportunity to become certified in Red Cross first aid and cardiopulmonary resuscitation (CPR) and to complete licensing requirements to become a long-term care assistant. Students participate in a four-week volunteer/observer program in area health care facilities.

- Child Care Occupations. Instruction includes career exploration in child care, prenatal care, childbirth, infant

care, child development, nutrition, and health and safety. Students participate in a three-week child care service during the Christmas holidays and also participate in two six-week fieldwork experiences in local nurseries, day care centers, and elementary schools.

- Horticulture-Landscaping. Aimed at special needs students in grades 10, 11, and 12, this course provides skills needed for employment in nurseries and other horticultural businesses and for developing gardening as a hobby. Skills include the planting and care of indoor and outdoor house plants, the planting and care of trees and shrubs, and the design, planting, and maintenance of fruit and vegetable gardens.

- Model Office. The class is centered on a simulated office in which students act as receptionists, accountants, mail clerks, typists, payroll clerks, etc. The course is aimed at improving students' business skills and knowledge and making them familiar and comfortable with business practices.

- Model Store. Similar to the Model Office, the Model Store simulates retail sales in food, apparel, books, gifts, and hardware. Students rotate jobs in merchandizing, cash register operations, window displays, and sales counters. Students also study advertising, shipping and receiving, store layout and design, payroll procedures, inventory control, and sales management.

- Auto Mechanics. Instruction covers safety, use of service manuals and publications, preventive maintenance, problem diagnosis, fuel systems, suspension and brake systems, transmissions, ventilation systems, electrical systems, tuneups, pollution control, and front-end alignment.

- Construction. The course centers on residential construction and includes topics such as site development, planning, masonry, carpentry, plumbing, and cabinet making. Each year students build a three-bedroom house on the school grounds.

- Graphics Communications. Coursework involves the design, preparation, and printing of graphics material. Students also learn camera use and operation, darkroom techniques, screen printing, and use of offset and photo presses.

- Machine Trades. Instruction includes principles of machine and machine tool set up and operation, shaping cold metal with machines and hand tools, and working from blueprints as well as written specifications.

- Welding Trade. Students study metallurgy, various welding processes and techniques, and blueprint reading.

- o Electronics. Coursework involves basic principles of direct and alternating current, semiconductors, circuit building, and testing.

The Center also offers the following OJT programs: service industries, sales and marketing, trade and industrial, agribusiness, and business and office. In addition to these programs, WVCC offers a management program for adult farmers, an alternative school for students aged 16 to 21 who have dropped out of school, and a two-way interactive television system.

The completion of courses at WVCC counts toward graduation requirements at the schools in the consortium. At Buffalo High School, a year's course at the Center counts for one of the 22 credits needed to graduate. Maple Lake High requires four quarter credits (of the 66 needed for graduation) from the following: "agriculture, art, business, home economics, industrial arts, [or] Wright Vocational Center [courses]."

Classroom Components

Each vocational program has work and classroom areas but is configured somewhat differently. For example, the machine trades shop occupies a large area with a large number of milling machines, a smaller nook where the instructor lectures and students do seat work, and small glassed-in offices. The auto mechanics program has two separate instructional areas (and two teachers)--the shop where students work on cars and a more traditional classroom with desks and a blackboard. The graphics program also has two classrooms (and two teachers) but a different configuration. One class is used for pre-press activities, such as design layouts, and looks like an art or drafting class with desks and drafting tables. The other classroom has desks, printing equipment, and a separate darkroom. The model office, which occupies a large open area, is the first thing a visitor sees after entering the building. Students work in office areas such as word processing and reception. The model store, which is behind the model office, simulates a small department store with a cash register and clothes, household goods, tools, and toys displayed as if they were for sale. Behind a partition is a classroom area for lectures, discussions, and seat work. The remainder of the central part of the building is classrooms for the instructional components of the on-the-job training programs. These rooms are vacant when students are at their job sites.

The mix of classroom teaching and shop or hands-on experience differs at WVCC according to the content of the particular course and the preference of the instructor. All classes meet five days per week for 100 minutes and extend over the full school year. Instructors teach three such blocks each day. All programs have some kind of classroom component, which involves lectures, discussions, demonstrations, etc., and most have shop time, in which students work on individual projects. For many of the "white glove" programs, hands-on or lab components are limited, such as a three-week day care program during the Christmas holidays, where students are responsible for setting up schedules and for preparing and conducting activities, such as reading a story. While one student presents an activity, other students observe the children and the techniques their fellow students use. During other parts of the year (except during volunteer work programs, discussed in

the next section), child care students study units such as birth defects, child abuse, licensing and setting up a day care center, and job seeking skills.

The two instructors in graphics communications use a team teaching approach. One instructor conducts pre-press activities for a given project, which might include design, layout, typesetting, and/or photography. The other instructor teaches production activities, during which students print and bind their projects. The instructors work with half of the students at a time, switching the groups roughly every 22 days. They believe this approach works well because "there's a sense of urgency to get a project done so that it can be continued in the other shop."

The auto mechanics instructors spend approximately 50 percent of their time in class and 50 percent in the shop. Class work involves lectures and demonstrations on applications and principles that students use in the shop, together with review of the math necessary to learn auto mechanics. One reason that math review is necessary is that "students know how to do math on calculators but they have problems working things out by hand. We spend a lot of time on measuring, and review of decimals and fractions." Some of the topics that are covered in class and applied in the shop are: personal and shop safety, engine overhaul, starters, battery maintenance, lubrication, tire balancing, and tune ups.

Work Experience

WVCC offers three types of work experience: unpaid (volunteer) work study within a regular program, simulated work in the model office and model store, and work through a cooperative education program. Each type is integrated into one of the separate year-long courses. The child care program, for example, has two six-week voluntary work periods. Students are not paid for this work but do earn class credit. During these periods, students attend class one day each week and spend the other four days at their work assignments. These include placements at elementary schools, day care centers, and nursery schools. To minimize transportation, the instructor tries to place each student in his or her home town.

A second kind of work experience is simulated work in the model office and model store. In the model store, for example, students spend part of their class time learning about topics related to retail sales such as advertising and merchandizing. The remainder of their time is spent role playing a variety of jobs related to sales; some students act as salespeople and cashiers while others act as customers. Those working in promotions develop advertising plans and newspaper ads and radio and tv spots. Students rotate roles so that all gain experience in every area.

The third type of work experience is cooperative education (co-op) in the five areas already mentioned. These are full-year courses that are open only to seniors. The co-op program places approximately 180 students in part-time jobs. Although most co-op students attended WVCC as juniors, this is not a requirement for co-op eligibility. For example, a student may take business at his or her home school or may enroll as junior in the model office at WVCC and then take the business and office co-op as a senior. The

one prerequisite is that every student must be interviewed by a co-op coordinator to take the course. Selection is not automatic: "We turn down a lot of students," according to the director. The coordinators check for appropriate skill levels but also assess factors such as the student's attitudes and attendance record. Interviews are important to determine what kind of job the student wants. Some students come into the program with a job. Others are placed by the Center. Almost all placements are paying jobs. According to one coordinator, "It's not as important what they make as that they make something." Wages range from minimum wage to $8.00 per hour. If, as rarely occurs, a student cannot be placed, he or she can enroll in another program at WVCC or return full-time to the home school.

Students earn one credit for the co-op job and one credit for classroom work associated with the co-op program. Coursework centers on job behaviors--"how to find them, how to keep them, how to quit." The following are examples of places where students currently hold jobs:

- Service Industry: child care facility, hospital, nursing home, fast food restaurant
- Business: law office, accounting firm, government office, utility company
- Sales: retail store, telemarketing firm
- Trades and Industry: construction firm, manufacturing firm, graphic arts firm

Students' grades are based on job performance, attitude, and class work. The coordinators observe students on the job, and employers rate their performance in areas such as timeliness, appearance, and cooperation.

## Extracurricular Components

WVCC provides only vocational education services. It sponsors no extracurricular activities because students participate in such activities at their home schools. The Center and the districts do cooperate so that students taking a class at WVCC can participate in home school activities. For example, if a school has a pep rally during school hours, staff at WVCC excuse students from class to attend. Similarly, home schools excuse students from class to participate in field trips sponsored by the Center.

## Outcomes

The main source of data on program outcomes is a one-year follow-up of students done for the state. These data are imperfect, but they provide some information on what happens to students once they leave WVCC. Table 3 shows that nearly all former students who responded to the survey attend some postsecondary institution, are gainfully employed, or both. Unemployment is low. The "Other" category presumably includes military enlistment.

Table 4 shows the self-reported wages of survey respondents. Overall, nearly 65 percent reported earning $4.00 an hour or more. Nearly 80 percent of the male respondents but only 28 percent of the female respondents reported earnings at this level or above.

Table 3

Results of One-Year Follow-up of Students Who Participated in WVCC Programs - Status

| Status | n | % | |
|---|---|---|---|
| Postsecondary Only | 51 | 22 | (88% of the 51 are full-time) |
| Paid Employment Only | 98 | 43 | (76% of the 98 are full-time) |
| Postsecondary and Employed | 57 | 25 | |
| Unemployed | 6 | 3 | |
| Other | 16 | 7 | |
| Total | 228 | 100 | |

Table 4

Results of One-Year Follow-up of Students Who Participated in WVCC Programs - Wages

| Wages ($ per hour) | Male (n=166) % | Female (n=62) % | Total (n=228) % |
|---|---|---|---|
| Less than $1.50 | 1 | 0 | 1 |
| $1.51 to $1.99 | 0 | 0 | 0 |
| $2.00 to $2.99 | 2 | 9 | 4 |
| $3.00 to $3.99 | 19 | 63 | 31 |
| $4.00 to $4.99 | 31 | 17 | 27 |
| Above $4.99 | 47 | 11 | 38 |
| Total | 100 | 100 | 100 |

## V. The Teachers

Professional and support staff at WVCC include the following:

| | |
|---|---|
| Director | 1 |
| Administrative Secretary | 1 |
| Bookkeeper | 1 |
| Instructors | 14* |
| Co-op Coordinators | 7 |
| Technical Tutors | 2 |
| Teachers' Aides | 2 |
| Custodians | 3 |
| Total | 31 |

*With students attending the Center in three two-hour blocks daily, the student-teacher ratio is approximately 19 to 1.

### Background and Training

All teachers at WVCC are certified in the areas they teach. Most have degrees from four-year institutions in relevant fields. For example, the medical occupations teacher has a B.S. in medical technology; the child care instructor has a B.A. in elementary education and an M.Ed. in early childhood education; one graphics instructor has a B.S. in industrial arts; the other has a B.A. in vocational education. Other teachers were educated at two-year institutions. For example, the electronics instructor studied at an AVTI. One teacher we interviewed came directly from industry and earned his certification while teaching.

Although a few of the instructors at WVCC are beginning teachers (the instructor in the Model Store is completing her first year of teaching, for example), most are veterans. The medical occupations instructor has 17 years of teaching experience; the two auto mechanics instructors have 47 years of experience between them. Moreover, many of the teaching staff have extensive experience as teachers at WVCC. At least two of the teachers have been at the Center since it opened in 1972. Several others have been there 10 years or more. For the teachers interviewed, the overall average years of experience is nearly eight years, indicating a low turnover rate.

All instructors have had relevant work experience. In some cases, they have had extensive experience in an industry or business germane to their subject area. For example, the welding instructor was in the welding business for 20 years before he started teaching at WVCC. One of the graphics instructors said, "I have worked in the offset printing business my whole life." The child care instructor was a director of a day care center. The electronics teacher owned a television repair shop before he started teaching. Some teachers--such as the machine trades instructor--still work in their trade every summer "to keep current."

Attitudes Toward Vocational Education and Students

Instructors at WVCC seem to have a business or industry orientation. They see themselves as craftsmen and professionals and treat their students more like employees than students. The teacher often assumes the role of foreman or supervisor. For example, the machine trades instructor said, "I set up the class like a job shop with project assignments. They know what projects are to be done and what chapters are to be read." Students know what their assignments are. If they need help, they consult the teacher.

Students react positively to treatment as adults. Regarding trouble-makers, the machine trades instructor said:

> They may be troublemakers at their home school, but they start fresh here. They lose the identity of the home school. This is the last chance for some students to get an education. We're people from industry. I tell them what it's like because I do it for a living. I had a student who was going to drop out. I talked him into taking machine shop. Now he's a foreman.

Another instructor told of a counselor at a home school calling one of his student's parents. "'What's he done now' the parent said. 'All I wanted to tell you was that your son got a B in graphics.' He now manages three Insta-Prints in Wisconsin."

Other instructors express positive attitudes toward special needs students. Their attitude is that if students will work hard, they want them in the program and will see that they benefit from it. One instructor said, "We can handle kids with low ability. One student has problems even holding a pencil, but he works hard. He doesn't accomplish as much, but he won't fail, either."

## VI. The Students

We were unable to obtain precise data on student demographics, but relied instead on observation, interviews, and a one-year follow-up of graduates. As one would expect, the student population is nearly all white. They come from a mix of middle-class, farming, and working-class backgrounds that parallels the combinations of social classes in the communities as a whole.

Academically, the students at the Center range from the highest to the lowest achievers. A principal of one of those schools said that "the students attending the Center are representative of all our students. We send some good students and some that are not so good." The welding instructor indicated that he had at least six straight "A" students in his classes this year. One reason high-ability students attend WVCC is that, according to one of the graphics instructors, "students are beginning to understand that it's challenging, so we're getting better students." According to a principal of one of the home schools, "they do things to attract better students. Programs such as health occupations are

challenging. They also individualize programs to challenge students with different ability levels."

The range in ability levels is supported by data from the one-year follow-up of self-reported class rank (Table 5). Overall, the reported class rank of those responding to the survey fell about evenly into four quartiles, although the self-reported class ranks of female graduates are noticeably higher than those of male graduates. It is unclear from these data whether this was an artifact of the survey (e.g., fewer females responded) or whether girls enrolling at WVCC tend to be higher achievers. We found no evidence from interviews to support the latter conclusion.

Table 5

Self-Reported Class Rank Based on
Results from One-Year Follow-up

| Class Rank | Male (n=166) % | Female (n=62) % | Total (n=228) % |
|---|---|---|---|
| Upper quarter | 18 | 44 | 25 |
| Second quarter | 23 | 29 | 25 |
| Third quarter | 24 | 16 | 22 |
| Bottom quarter | 35 | 11 | 28 |
| Total | 100 | 100 | 100 |

The dropout rate of students in the 10 home schools is low, reportedly under 10 percent. The rate among students at WVCC is also low, about six percent. The superintendent of one district in the consortium said that "very few students drop out once they're there."

## Special Populations

According to one of the special education tutors, WVCC serves approximately 30 special education students, or about four percent of the Center's total enrollment. Most are classified as learning disabled or educably mentally retarded. Although the Center is readily accessible to the physically handicapped, few enroll. Special education students tend to be enrolled in certain occupational areas more often than others. For example, about 20 percent of those enrolled in child care are special education students. Auto mechanics classes also receive a high proportion of special education students.

Special education students receive support to facilitate their success at the Center. Two technical tutors--one for the "white gloves" areas, the

other for the "black gloves" programs--provide additional services to these students, who are mainstreamed in several of the programs. One of the principal services is helping sophomore special education students decide whether they want to attend WVCC and in what program they want to enroll. Orientation activities include a tour of the school and a chance to see classes in session. We observed one student's introduction to the Center. The tutor provided information about the program and its demands and conducted a 45-minute screening of the student's strengths and weaknesses. The session was low key but thorough. The tutor had the student read from the horticulture textbook and answer questions based on the passage. She also asked questions such as "What kinds of things have you done with your hands" and "What experiences have you had with plants?" Finally, she evaluated the student's math ability with problems that she would encounter in the program, including using a ruler and a compass. At the end of the session, the student seemed to be assured that she could succeed in the program. The tutor said that she would recommend the student for the program and that she had a good idea of the type of help she will need next year.

Sex Stereotyping

Although enrollments at the Center are fairly evenly mixed in terms of gender, most classes do appear to break out along traditional male/female lines. For example, the medical occupations, child care, and model store mainly enroll girls. Electronics, machine shop, and auto mechanics enroll mainly boys. Some classes, such as Graphics and Media, appeared to have fairly even numbers of both sexes.

Several teachers discussed why there are few boys in "white glove" courses and few girls in "black glove" courses. According to the electronics instructor, "students say that 'electronics is for boys' and it's hard to get beyond that stereotype." The child care teacher noted that a boy who takes child care "needs to be real brave. He needs to be able to stand up for himself because he will get teased." Further, home school staff can be responsible for promoting sex stereotyping in vocational courses: "Once a counselor talked a boy out of [child care]. I was very upset. The students do a lot of stereotyping on their own. We don't need to add to it."

Attitudes Toward Vocational Education

Overall, students at WVCC have a positive attitude toward vocational education. They see classes at the Center as useful to future careers and for exploring future opportunities. Some students enroll because they are interested in preparing for jobs related to coursework at the Center. Others take courses at WVCC because they are related to interests at the home school. For example, a student in graphics said she had taken that program "because I thought it would have something to do with art." She has no plans to pursue a career in graphics. In general, students enjoy attending programs at the Center. As one instructor noted, "they are here because they applied to be here." According to the same instructor, who has been at the Center since it opened, "the first three or four years we were a

dumping ground. That's changed since schools started to give credit for courses and counselors and principals got to know us better."

At the same time, not all attitudes are positive. One instructor said, "Sure, there is a stigma attached to vocational education." In addition, not all students come to WVCC for reasons associated with the coursework. One teacher told me that "some students come here because of their friends. If one leaves, there is an exodus." Recently when this happened, he asked some of the students, "What will you do when you leave school? If he goes on welfare, will you follow him?"

Hopes and Aspirations

As the results of the one-year follow-up show (see Table 1), most students graduating from WVCC go on to some postsecondary education, into paid employment, or into a combination of employment and further education. These outcomes seem to be typical of all students in the home schools. For example, a principal of one of the smaller sending schools said that "about 50 percent of our students go on for further education and about 50 percent go right to work." Although a large number of graduates pursue post-secondary education, "relatively few go on to four-year institutions," according to the same principal.

Patterns of pursuing further education and/or continuing in the specific occupational training area differ significantly within vocational programs at WVCC. In medical occupations, approximately 60 percent continue in a health-related field, but the instructor indicated that only 13 percent of her students attended four-year institutions. According to the electronics teacher, "Most students who want to pursue this field go on to an AVTI. But maybe that's me" (i.e., he is a product of an AVTI and perhaps as a result encourages his students in that direction). The instructor in child care said that between 30 and 40 percent of her students attend an AVTI. The majority end up in other fields, either directly after high school or after some postsecondary education. She also noted that significant numbers of her students take this course for parenting skills, although this is not a purpose of the course and parenting is covered in courses at the home schools. The auto mechanics instructors also indicated that many of their students (50 to 70 percent) take their course for personal improvement rather than any aspiration to become auto mechanics. The welding instructor said that "a lot of my students come back to visit me. Many of them do not go into it immediately, but many do end up in welding after three or four years."

The teachers in the cooperative education program also indicated different post-high school patterns for their students. The co-op teachers for business said that 75 percent of their students go on to an AVTI or a four-year institution. The Trades and Industry instructor noted that about 50 percent of his students continue formal education. He also estimated that 70 to 75 percent ended up in jobs related to Trades and Industry. The cooperative teacher for service occupations said that more than half of her students go directly into the job market, usually in service-related jobs.

## VII. Summary Themes and Indicators of Success

Several themes related to the success of the Wright Center emerge from our observations and from interviews with administrators, teachers, and students. First, there is a general understanding of and agreement with the Center's underlying philosophy of vocational education. The staff at WVCC agree that the primary purpose of the Center is and should be the exploration of career options. While students do acquire specific vocational skills that they can apply directly upon employment if they do not enter postsecondary training, there was consensus that obtaining indepth information about a given occupation or cluster of occupations, rather than receiving extensive skill training in the occupation, is the primary goal of the Center.

This view of the appropriate mission of secondary vocational education is reflected in the organization of the school's offerings. Each of the "programs" is a single year-long course (although some students in some programs also enter co-op as a second year). Further, the instruction for the most part simulates a workplace environment and the social organization of real jobs; in effect, this approach teaches students how to work rather than what skills to exercise on the job. Through their class and shop experiences, students are learning self-reliance, decisionmaking, timeliness and industriousness, and other aspects of behaving as adults in the workplace. Learning basic foundations of occupational skills and the job behaviors necessary for successful labor force participation, along with exposure to different types of occupations, is thought to be important to preparing the Center's students for successful pursuit of postsecondary training and later careers.

The governance structure of the Center has contributed to its survival, while other vocational cooperatives in the state have failed. Although districts in the consortium vary in size from a few hundred to a few thousand students and although districts' monetary contributions and number of student slots are proportionate to size, each district has one vote on the governing board. This one-district-one-vote philosophy has contributed to a sense of ownership for all districts. School boards of the 10 participating districts believe they have direct oversight in the operations of the Center and as a result have continued their participation and support.

The director's consultative style also contributes to this sense of ownership and support. He regularly consults with superintendents, high school principals, and guidance counselors on questions and problems appropriate to their responsibilities. These systematic consultations provide administrators and staff of the 10 districts with a sense of participation in the Center's administration. These groups, in turn, support the director's recommendations before the governing board and the larger community.

The director's administrative style, which he derived from his experience in the business world, is another factor in the Center's success. The most important aspect of this style is delegation of responsibility and authority. As a result, teachers at WVCC have substantial latitude to

determine what they teach based on their professional expertise and the guidance of their advisory groups. The resulting trust and respect between the director and teachers have been important in building and maintaining high staff morale.

The director's administrative style and attendant professional treatment of teachers have helped to attract and hold a well-qualified instructional staff. One important characteristic of the staff is their experience and ongoing contact with postsecondary institutions and with the business and industrial community. These contacts help ensure that what is taught is related to programs for further study at AVTI's and four-year institutions and ultimately to the needs of employers. Business and industrial contacts also lead to support for the programs at the Center in terms of, for example, providing employment for graduates of WVCC. The business and industrial contacts of WVCC instructors also support positive perspectives toward students. Teachers at WVCC tend to treat their students more like employees than like teenagers. Being treated more like adults seems to have a salutary effect on the behavior and attitudes of students. Students who are troublemakers at their home high school often perform quite well at the Center.

Instructors' business orientations influence how they teach. Much of the instruction is modeled on work. For example, the Model Office and Model Store simulate office and retail environments. The machine trades instructor sets up his class as a "job shop." Students in graphics cycle through the design and production phases of a series of projects as they might in a printing business. The major activity of construction trades is building a house. An important project of the electronics class is to wire the house that construction students build.

Besides relating class and shop activities to actual jobs, this strategy of modeling working environments is important for individualizing instruction. Students in most classes work on individual projects. The better students can work faster and more independently, proceeding to more advanced and challenging work. Less able students can work at a slower pace, receive continuing help from the instructor, and not hold back the more able and ambitious students.

In part because of the ability to individualize, programs at WVCC attract a wide range of students. Course work and shop work can be tailored to both the needs of special education students and to the college bound. As a result, the Center has managed to avoid some of the stereotyping and tracking of the vocational education student that often occurs at the secondary level.

All these factors have contributed to a regional vocational educational center that is successful in many respects. One aspect of WVCC's success is that it has survived when similar centers in Minnesota have closed. Even as enrollments have declined and support for education has decreased, WVCC has grown in enrollment, in the programs it offers, and in the spectrum of students it attracts. Although in its early years the less able students and troublemakers were "dumped" there, more recently the Center has been able to draw some of the best students from participating high schools. For

this reason and because of instructors' support and encouragement, nearly half of WVCC graduates attend two- or four-year postsecondary institutions.

Success of the Center is also indicated by employment rates. In a one-year follow-up of graduates, less than three percent reported that they were unemployed. Nearly 70 percent indicated that they held full- or part-time paid employment, and 90 percent of the respondents were engaged in some combination of further schooling and/or work. Thus the Center appears to be achieving its goals of encouraging students to gain additional training and teaching them how to function effectively in the labor market.

## VII. ITINERANT VOCATIONAL EDUCATION

A secondary vocational education cooperative "without a roof," the Woodland Cooperative Center, based in Staples, Minnesota, takes vocational education to the students in six small communities in that state. Classes are conducted in the participating schools, with students or teachers traveling to one or another of the schools for their vocational courses. The exploratory vocational education offered through this arrangement introduces students to a variety of career options that they can pursue after graduation through further training or education. The case study describes some of the innovative strategies that have been developed to enable very small school districts to provide vocational options that individually they could never hope to offer their high school students.

WOODLAND COOPERATIVE CENTER
Staples, Minnesota

Nancy E. Adelman

## I. Overview

### The Setting

Driving north of the Twin Cities for three hours along the Mississippi River and then west brings a visitor to the heart of central Minnesota. It is an area of small towns and very small towns. Farming, agribusiness, and assorted small businesses are the economic mainstays of these communities. Staples itself is a "division point" on the northern tier east-west railway route; until about 1960, the railroad was the town's only industry.

The Woodland Cooperative Center is a vehicle for extending the vocational offerings of high schools in six small Minnesota communities: Browerville, Clarissa, Eagle Bend, Motley, Pillager, and Staples.[1] With a population of about 3,000, Staples is the "metropolis" in the group. The other towns average 500 to 600 residents. So far, all the towns in the cooperative have managed to maintain their own school districts, although the specter of consolidation now faces one community as its physical plant deteriorates. Each high school offers some of its own vocational programs, with the cooperative programs supplementing these often limited offerings.

The Woodland Center is not a place. Unlike the Wright Vocational Cooperative Center described in another case study in this volume, the participating communities in the Woodland Cooperative do not have the resources to float a bond issue for vocational school construction. As the director of Woodland says, "We are a cooperative without a roof." Space for administrative offices is rented from the Staples school district. Vocational classes funded through the cooperative arrangement are conducted in several member schools, and students travel from their home schools to take vocational courses in whichever school they are offered. In addition, some vocational teachers travel among schools, providing vocational instruction in each. Thus, in some sense the cooperative delivers "itinerant" vocational education.

Finding the offices of the Woodland Cooperative is easy. Turn right one block past the traffic light. (That's <u>the</u> traffic light.) Physically, Staples is typical of many small midwestern towns--a "downtown" crossroads with a cluster of two-story, flat-roofed commercial establishments and

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[1] The full name of the cooperative is Freshwater/Woodland Cooperative Center. The Freshwater portion of the consortium provides special education programs for children from the six school districts. A third cooperative enterprise--the Interactive Cooperative Educational Television System (K45AR)--involves Clarissa, Eagle Bend, Staples, and two districts that are not part of Freshwater/Woodland.

several blocks of residences extending out from the hub in all four directions, gradually thinning to the first farm on the outskirts of town. The other towns in the cooperative are similar, without the traffic light.

## Philosophy/Mission/Goals

The stated objectives of the Woodland Center are "to provide high school students with an opportunity to explore [emphasis added] careers, enhance basic skills, develop basic job entry or employability skills, and to prepare for post-secondary education." The clear emphasis is on exploratory vocational education leading to postsecondary education or training. Nevertheless, the Woodland Center Director estimates that approximately one-third of the students served by the cooperative will go directly to work and therefore need job-entry skills.

## School Climate

Because the vocational classes offered through the Woodland Center are dispersed across several schools, there is no characteristic ambience or ethos attached to the center program. Students enrolling in the Center-sponsored courses are alerted through their school's course list to the fact that participation in these vocational courses is a privilege that can be withdrawn. The principal opportunity for abuse of the cooperative system would be failure to attend class. Since a significant number of students travel between school districts at various times of the day, the potential for truancy exists. It has never been a serious problem, however.

Forty-three percent of the secondary schools in America, educating about 14 percent of all high school students, enroll fewer than 500 students each. In addition, there are over 1,600 combined elementary/secondary schools, enrolling nearly three-quarters of a million students; perhaps one-third of them are in the high school grades.[2] As Table 1 shows, both statistical groups are represented in the high schools participating in the Woodland Cooperative.

Small rural schools have essentially the same types of problems as larger schools. The qualitative difference lies in the fact that the problems (and the achievements) are on a personal scale. In schools of this size, every student's successes and failures, warts and blemishes, hopes and plans are well known by some or all of the faculty and administrators. A small proportion of students drop out, but 60 percent or more of them are cajoled back in through an alternative education program (described in a later section) run by the Woodland Center. Vandalism and theft are by no means unknown. Teenage pregnancy is relatively common. Substance abuse (mainly alcohol) is as rampant as it is anywhere else. There are still cracks to fall through, but they are not the cracks of anonymity found in large schools.

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[2] Digest of Education Statistics, 1987. Washington, DC: U.S. Department of Education

Table 1

Enrollment in Senior High School and Grade Structure of Schools for Six Rural Communities in Minnesota

| School District | Enrollment Grades 10-12 | Grade Structure of Local School(s) |
|---|---|---|
| Browerville | 140 | K-12 |
| Clarissa | 80 | K-12 |
| Eagle Bend | 90 | K-12 |
| Motley | 120 | K-12 |
| Pillager | 140 | K-12 |
| Staples | 425 | K-6; 7-12 |

## II. The School and the Community

Schools and churches are the centerpieces of community life in the Woodland Center's member towns. Staples has a community center with a swimming pool as well. However, in all the towns, the school band, the sports teams, the chorus, and the honors accrued belong to and are enthusiastically supported by the entire populace. This goes for the vocational education programs as well, and for good reason. Not too long ago, vocational training played a major role in helping bail the area out.

### Employers

In the early 1960s, Staples was led to believe that it would shortly become redundant as a railroad division point. The trains would continue to pass through, but they would no longer stop to change crews. This was a major threat to the community's economy. However, the town fathers decided to build a new water tower, as a symbol of the commitment to keep the town vital, and to form an economic development group, in which the superintendent of schools, the school board chairman, and the high school machine shop teacher played a prominent role.

At that time, Minnesota already had a strong system of postsecondary Area Vocational-Technical Institutes (AVTIs), located in considerably larger towns around the state. The Staples Economic Development Committee asked themselves, "Why not here?" and successfully lobbied the appropriate state officials. Staples' AVTI opened in 1964. Originally housed in Staples High School, it is now located in a massive building on the outskirts of town. In the beginning, the principal program was machining, to which have been added numerous other concentrations such as food preparation, fast photo services, emergency personnel training, computer-assisted graphics, and (the centerpiece) heavy equipment operations.

The impact of the AVTI on Staples' economy was dramatic. Suddenly, the area could promise business and industry a ready supply of well-trained labor in a variety of fields. Not only that, the heavy equipment program could prepare a building site inexpensively. The result is that Staples is no longer a one-shop town. Local employers include:

- 3-M (one of the state's largest employers) now employing 80-90 machinists at $35,000 per year
- a producer of plastic medical supplies with 100 employees
- a rubber and tool company, with 100 employees
- a photo processing company
- an optical company, employing 60-70 plastics machinists
- a clothing manufacturer
- a wooden container company
- a firm that specializes in repairing large machinery (owned by a former vocational teacher)
- a new hospital and nursing home

The director of the Woodland Cooperative points out that both the AVTI and the vocational/special education cooperatives should be included as "industries" that help sustain the economy. The cooperatives employ 20 people.

Advisory Groups

Each vocational program offered by the Woodland cooperative and by individual high schools has its own advisory council. Members are drawn from local business and industry and from the general citizenry. With 39 separate programs offered and an average of six to eight members on each board, this means that between 250 and 300 citizens are closely and voluntarily involved with secondary vocational education at any given time. This is possibly as much as five percent of the total area population! The Woodland director noted that much of this support is taken for granted and should probably be better recognized and honored in some way.

The Woodland Cooperative has a 12-member governing board consisting of two representatives from each participating community. Regardless of the number of participating students or financial commitment to the cooperative, all towns have an equal vote. The director attributes the cooperative's longevity to this governing structure. At one time, there were 61 secondary vocational education cooperatives in Minnesota; now there are about 30. Many failed because of the hostilities engendered by unequal representation on the advisory board.

Parents

The present chairman of the Cooperative's governing board, a farmer, spoke about the vocational education programs from his "official" perspective and from a parental point of view. Several of his 12 children have participated heavily in vocational programs while in high school. Although they have all gone on to four-year colleges, he strongly believes their vocational training was valuable, no matter what their ultimate career paths. That attitude is pervasive in a part of the country where nearly all students elect vocational courses in high school.

The involvement of parents with the vocational programs is both intimate and informal. Because of the small settings, teachers are known in contexts other than the schools, which encourages home-school communication. But there are other rituals or traditions that foster parent involvement as well. In Browerville, for example, the carpentry shop is often open on Saturdays. Students work on their projects and parents drop in for a cup of coffee and a chat with the instructor. This habit is both more and less than a regularly scheduled parent/teacher conference. There is no agenda, but parents see what students are accomplishing and have the opportunity to contribute their own ideas and insights regarding the content of the woodworking courses.

## III. District Structure of Vocational Education

Role of Vocational Education in the District

We asked the superintendents in all six districts how vocational education fit into the overall educational programs that their schools offered. For them, there is no question that vocational education belongs in the secondary school curriculum. As one said, "Without vocational education, we wouldn't have a total program." Another described the high school in a small town as being "like the grocery store. It serves the whole community and must account for many tastes." These men know their constituencies and their constituencies value vocational education. Boys from the farm may enroll in a welding course as background for postsecondary education or because that skill is useful at home. Girls taking business courses may attend the proprietary business college in the nearest large town or they may marry a farmer and keep the farm's books. Either way, their exploratory high school vocational training has been put to use.

Relationship to the Academic Program

In comparison with many states, Minnesota mandates relatively few high school graduation requirements. In grades 10-12, students must take English each year, American history, a senior year social studies course, and a year of health/physical education. Local communities are largely left to set their own requirements. Standard high school graduation requirements for Eagle Bend and Staples are representative of the six districts participating in the Woodland Cooperative.

In Eagle Bend, the district adds one year of math and science in tenth grade to the state mandates and requires a total of 21 credits (grades 9-12) for graduation. As Table 2 shows, this leaves a good deal of time for electives, which are available in the following areas:

| | |
|---|---|
| Business | Computer Skills |
| Home Economics | Foreign Language |
| Vocational Agriculture | Math |
| Woodland Vocational Center | Music |
| | Social Studies |

With so much discretionary time, many--probably most--students take a good deal of vocational education and do not confine themselves to a single program area.

Table 2

High School Graduation Requirements
Eagle Bend, Minnesota

| 9th Grade | | 10th Grade | | 11th Grade | | 12th Grade | |
|---|---|---|---|---|---|---|---|
| Subject | Credit | Subject | Credit | Subject | Credit | Subject | Credit |
| Civics | 1.00* | English | 1.00 | English | 1.00 | English | 1.00 |
| English | 1.00 | Bus.Math or | | | | Soc.Studies | 1.00 |
| Bus.Math or | | Geometry | 1.00 | | | | |
| Algebra | 1.00 | Am.History | 1.00 | | | | |
| Science | 1.00 | Gen.Biology | 1.00 | | | | |
| Art | 0.50 | Phy. Ed. | 0.50 | | | | |
| Phys. Ed. | 0.50 | Health | 0.50 | | | | |
| TOTAL | 5.00 | | 5.00 | | 1.00 | | 2.00 |

*Numbers in parentheses indicate Carnegie units: 1 = a full year course; 1/2 = a semester course.

Staples is on a quarter system and requires 96 quarter credits for graduation (the equivalent of 24 Carnegie units). As Table 3 illustrates, 11.75 units are specifically designated. Staples High School, at four times the enrollment of Eagle Bend, offers students many more elective options, particularly in English, social studies, and art but also in the scope of vocational sequences.

In order to help students choose useful electives, Staples' Student Registration Handbook recommends particular types of courses depending on the individual's post-high school plans. Students who are interested in attending an AVTI for technical training are steered toward math, science, and computer courses as well as the Woodland Center or school-based occupational classes. Courses such as business English, computers, and typing are recommended for vocational education and for personal enrichment. As in Eagle Bend, a large number of students participate in vocational courses, no

matter what their post-high school plans. One college-bound senior girl, for example, was taking a college-level English course offered at the high school through one of the state colleges; she was also enrolled in an independent study project in advanced sewing through the Home Economics Department. Another girl, who described herself as being "in the health occupations program," was taking machine shop so that she would understand what her father and her fiance were talking about; she plans to become an elementary school teacher.

Table 3

High School Graduation Requirements
Staples, Minnesota

| 9th Grade | | 10th Grade | | 11th Grade | | 12th Grade | |
|---|---|---|---|---|---|---|---|
| Subject | Credit | Subject | Credit | Subject | Credit | Subject | Credit |
| Civics | 1.00* | English | 1.00 | English | 1.00 | English | 1.00 |
| Soc.Studies | 1.00 | Soc.Studies | 0.75 | Soc.Studies | 0.75 | Soc.Studies | 0.75 |
| Math | 1.00 | Math | 0.50** | Consumer Ed. | 0.25 | | |
| Science | 1.00 | Phy. Ed. | 0.50** | | | | |
| Phy. Ed. | 0.50 | Health | 0.50 | | | | |
| Home Ec. or Ind. Arts | 0.25 | | | | | | |
| TOTAL | 3.00-4.00 | | 3.25 | | 2.00 | | 1.75 |

*Numbers in parentheses indicate Carnegie units. Staples' quarter credits have been translated for this purpose.

**The half credits in math and physical education may be taken at any time in grades 10-12.

Despite the small enrollment of the schools and the centrality of the vocational programs, there is little deliberate integration of the academic and vocational curricula. With no math and science required after tenth grade, vocational instructors in areas such as electronics or machine shop assume that they will review or perhaps introduce relevant academic topics as needed in their courses. Students enrolling in Machine Shop II may elect an eight-credit version of the course that includes two periods a day of related math. Completion of the eight-credit course results in advanced standing at the AVTI[3]. Electronics I and II require general math or Algebra I as a prerequisite. The Director of Woodland realizes that better integra-

[3] Minnesota recently passed the Postsecondary Enrollment Act, allowing high school students to attend courses or programs not offered in their secondary schools at community colleges, four-year colleges, or AVTIs at the school board's expense. This option has not yet been widely used, although a few Staples students travel to Brainerd Community College.

tion of learning across the curriculum is needed, but he has many bases to cover. This need is not necessarily at the top of his list.

Decisionmaking and Governance

We have already described the structure of the Woodland Cooperative's governing board. The equal representation clause in the Cooperative's by-laws is one reason this cooperative has succeeded where others failed. Other factors are important as well.

The superintendents of the six school districts and the Woodland vocational director sit as ex officio members of the governing board. In addition to the governing board, the cooperative has (1) a state-mandated general advisory committee that meets twice a year, (2) program-specific advisory committees that include representatives from postsecondary institutions in the area, and (3) a six-member steering committee (with high school principals ex officio) to advise the governing board on long-range planning. The steering committee meets regularly; others are required by the Cooperative's bylaws to convene once or twice per year. This structure seems somewhat cumbersome on paper, but there is overlap among the various committees and it appears to function well.

Leadership is a critical factor. Much of the credit for Staples' economic revival in the 1960s is attributed to its superintendent of schools at the time, a gentleman with a national reputation in vocational education circles. His former director of secondary vocational education is now director of the Woodland Cooperative. Originally a vocational agriculture teacher, the director has a solid grounding in the community (19 years in one educational capacity or another), tremendous energy, and a vision of what the cooperative can be, all of which are necessary qualifications for the job. His principal responsibility is coordination of vocational education for the cooperative and the separate programs offered by the six member districts. Component responsibilities include:

- hiring and supervision of vocational teachers
- planning, development, and evaluation of vocational education programs, including provision for student follow-ups
- preparation and monitoring of program budgets for shared secondary vocational education, adult farm management, alternative education, and telecommunications
- purchase of all vocational equipment (shared and unshared programs inclusive)
- tracking of state and national legislation for the six superintendents
- transportation arrangements for shared-time programs

- o community liaison for all matters pertaining to vocational education

- o liaison to the governing board, superintendents, and principals

As we traveled around the cooperating towns, toured the AVTI, and lunched in various cafes, it was clear that the Woodland director was well known, well respected, and a highly visible member of the regional community. He is a past president of the Staples Chamber of Commerce and the Rotary Club. When the state legislature is in session and discussing educational matters, he regularly makes the five-hour round-trip to the Twin Cities to represent his member districts' points of view. On behalf of the Interactive Cooperative Educational Television System, he deals with Washington-based lawyers, complex FCC regulations, and state-of-the-art fibre optics technologies. It is, therefore, doubly impressive that as he accompanied us on a tour of four of the six school districts, he addressed every adult and most students by name.

It would be unfair to say that the Woodland Cooperative's excellent in-state reputation rests solely on the efforts of a single individual. Other factors include the superintendents' considerable good will and determination to make the most of scarce resources, community willingness to serve in advisory capacities, and some fine and enthusiastic teaching. Nevertheless, without the dynamic central leadership, the effort would be diminished.

Supports and Constraints

The transfer of state and local monies from the member districts to the cooperative provides the principal financial support for the Woodland Cooperative. The Woodland budget for 1986-87 was $2,445,719, which is larger than the total budgets for five of the seven member districts.

Woodland's director is realistic about the constraints on vocational education in a rural area. His long-range goal is for the cooperative to survive amidst uncertainties about changes to state formula funding and declining enrollments. In the best of all possible worlds, he would like to modernize some programs. For example, the high school machine shop is described as "traditional and antiquated," in an age when business and industry increasingly rely on computer-assisted machining (CAM). However, the Cooperative has little money for capital outlay and in fact relies on hand-me-downs from the AVTI for the machining equipment it does have. In the director's opinion, serious training programs in new vocational areas such as robotics cannot be the province of the secondary schools because they are simply too expensive. (Nevertheless, Staples does offer an introductory robotics course as part of its electronics sequence.)

Unique Features

The Woodland Cooperative employs a unique delivery system for shared-time vocational education in rural areas. In contrast to the more familiar concept of centralizing vocational programs in a single-purpose building called the Area Vocational Center, Woodland utilizes a satellite model

whereby (1) specific vocational programs in individual comprehensive high schools serve several schools (a practice involving the movement of students between schools) or (2) itinerant teachers offer their vocational specialties in multiple schools.

Two programs administered by the Woodland Cooperative bear special mention here. The first is an alternative education program, developed in response to the suggestions of a state vocational education evaluation committee in 1981. Generally speaking, Minnesota has one of the lowest dropout rates in the nation. There are, however, some students who drift away or openly rebel. The Woodland director estimates that, in the region served by the Cooperative, an average of two to three percent of students drop out. Of these, approximately 60-70 percent are now brought back in through the Alternative Education Center, which opened in 1983-84.[4] The Center is principally funded through state vocational education funds for special needs students, although $45,000 in federal vocational education funds (for handicapped and disadvantaged students) supported the purchase of a computerized, individualized basic skills package and a teacher aide in 1986-87.

Students, the majority of whom are identified as disadvantaged or learning disabled, are enrolled in the program through referrals from their schools or through their own initiative. The Alternative Education Center is currently a self-contained classroom in the oldest wing of Staples High School but will move next year when the wing is demolished. Most participants spend four periods per day in the Center, working individually or in small groups on academic requirements needed for graduation, employability skills, and activities designed to improve self-esteem. The remainder of the day is spent in regular classes, Woodland vocational classes, or work experience cooperative programs. Two teachers are assigned to the Alternative Education Center.

On average, the alternative program serves from 12 to 20 students at any given time and provides a valuable resource for the communities that support it. However, it has had definitional problems--is it principally a vocational program or a special education program?--that are at least partially related to requirements imposed by funding sources. The Woodland director is currently chairing a committee to evaluate the program's future. One change is definitely scheduled for next year: a computer-assisted instructional program for use in the classroom component. Other proposals are also on the table: a new name (perhaps Area Learning Center); involving more communities; offering academic work in the evening to accommodate students who work.

A second program administered through the Woodland Cooperative is K45AR, the area's interactive educational television system. Three of the six communities in the vocational consortium plus two others parcicipate in the two-way process. The main purpose of the system is to extend and enrich

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[4] The Alternative Education Center serves the six towns that participate in the Woodland Center plus the community of Long Prairie, which is a member of the Freshwater Special Education Cooperative.

the limited offerings of small schools. As with all the cooperative programs, pooling resources yields a far bigger bang for the buck. For a total cost to the participating communities of about $120,000, students can take shorthand, advanced math, physics, Spanish, and German courses via the "communicasting" system. The foreign language courses are most heavily subscribed, shorthand the least.

Interactive television is an astonishing technological feat. It in no way resembles the typical use of instructional television in American schools, i.e., tuning in regularly scheduled shows on the local PBS affiliate. Teacher and students--sitting in studios that are miles apart--conduct themselves precisely as if in a regular classroom. Lecture and explanation are followed by questions and responses. Multiple cameras allow the instructor to keep tabs on the attentiveness and behavior of groups as large as 15-20 students. Homework and quizzes are transmitted directly to the teacher in the originating school via thermofax machines.

The importance of K45AR to small schools is highlighted by the situation at Clarissa, enrolling 80 high school students. Through the interactive television system, nine students are taking Spanish and two students each are enrolled in physics, German, and advanced mathematics. The televised shorthand course originates in Clarissa and is thus a regular offering for students there.

## IV. The Vocational Education Programs

The Woodland Cooperative's shared time vocational courses are offered in four locations: Browerville, Eagle Bend, Motley, and Staples. Table 4 outlines (1) the actual courses offered, (2) the location of each class, (3) participating schools for each site, and (4) the times classes meet. Most classes are double periods with total daily instructional time of slightly under two hours.

In vocational areas where even the smallest home schools offer their own courses (e.g., home economics, industrial arts/beginning carpentry, vocational agriculture, and business education), the Woodland Center offers more advanced or specialized classes. Thus, students may travel to Staples to take Finish Carpentry (prerequisite: Woods I at the home school), to Motley for Small Engines/Agricultural Production, and to either Browerville or Staples to participate in a course where, in alternate years, a house is actually constructed. Child care and child development classes, which are specialized areas of home economics, are centralized at Staples High School, where a Child Care Center offers the opportunity to work with preschoolers. (Interestingly, the three, four and five-year-olds who attend the Child Care Center program also "commute" considerable distances in order to participate. Kindergarten is not yet a state requirement in Minnesota.)

Some of the vocational programs offered through the Center are not taught at all in the home schools, such as health occupations, machine shop, and electronics. Without the pooling of resources, these areas would be unavailable except perhaps to students living in Staples, and Staples alone

Table 4

Woodland Cooperative Center 952
Shared Time Programs

| Program | Location | Participating Schools | Approximate Time |
|---|---|---|---|
| Agriculture | | | |
| Small Eng./Ag.Prod. (Sec. I) | Motley | Motley/Pillager/Staples | 10:16 - 12:00 |
| Ag. Small Eng. (Sec. II) | Browerville | Browerville/Clarissa/Eagle Bend | 12:45 - 2:10 |
| Finish Carpentry (Woods II) | Staples | Staples | 8:10 - 9:54 |
| Building Trades | Staples | Motley/Pillager/Staples | 12:30 - 2:20 |
| Carpentry-Construction | Browerville | Browerville/Clarissa/Eagle Bend/Long Prairie | 12:45 - 2:10 |
| Child Care | Staples | | |
| Lab Bloc | | Staples | 9:58 - 11:41 |
| Occupation Child Care | | Browerville/Clarissa/Eagle Bend/Motley/Pillager/Staples | 12:30-2:20 |
| Elementary Trainee | | Staples | Arranged |
| Drafting II | Staples | Browerville/Clarissa/Eagle Bend/Motley/Pillager/Staples | 12:30 - 2:20 |
| Electronics I & II | Staples | Browerville/Clarissa/Eagle Bend/Motley/Pillager/Staples | 12:30 - 2:20 |
| Foods Occupatibns | Eagle Bend | Browerville/Clarissa/Eagle Bend/Staples | 12:30 - 2:13 |
| Health Occupations | | | |
| Section I | Staples | Motley/Pillager/Staples | 10:00 - 12:00 |
| Section II | Browerville | Browerville/Clarissa/Eagle Bend/Long Prairie | 12:45 - 2:10 |
| Section III | Motley/Pillager | Motley/Pillager/Staples | 12:30 - 2:09 |
| Machine Shop | Staples | | |
| Ia | | Staples | 9:47 - 11:23 |
| Ib | | Browervillew/Clarissa/Eagle Bend/Pillager/Staples | 12:30 - 2:20 |
| II Shop | | Staples | 8:08 - 9:43 |
| II Related Math/P&M | | Staples | 12:44 - 3:10 |
| Model Office | Staples | Browerville/Clarissa/Eagle Bend/Motley/Pillager/Staples | 12:30 - 2:20 |
| Bus.Ed./Computers/ Model Office | Browerville | Browerville/Clarissa/Eagle Bend/Staples | 12:45 - 2:10 |
| Auto Mechanics | Long Prairie | Browerville | Arranged |
| Agriculture | Motley | Motley/Pillager/Staples | Scheduled |
| Alternative Education | Staples | All Schools | 8:10-11:54 or 12:44- 3:10 or All Day |

NOTE: Times are approximate. Times will vary to facilitate busing, and home-school schedules.

would have difficulty supporting sequences of courses in all the subjects currently offered cooperatively.

While the school districts value the enlarged scope of vocational education that Woodland allows, it does, as one superintendent noted, "put a crimp in your local scheduling." Coordinating travel schedules and convenient time slots among six districts is a major administrative feat. Participating students also have their individual scheduling concerns. If one lives in Motley and ends up in Building Trades class at Staples at 2:30, participation in sports and other extracurricular activities becomes difficult. Many students, therefore, are likely to enroll in Woodland courses for only one or two quarters rather than a full year.

Most of the individual schools in the consortium offer their own vocational agriculture programs. These follow the classic vocational agriculture model, including required membership in the Future Farmers of America, a supervised occupational experience program (SOEP), and maintenance of a personal financial record. Participation in vocational agriculture among the member districts varies. Staples requires all ninth through twelfth graders to take one quarter or semester of agriculture, home economics, or industrial arts, which naturally raises enrollments in introductory courses. In Eagle Bend, vocational agriculture competes (apparently successfully) with music programs and home economics for elective enrollments. This year's roster has 52 members in a senior high school program with a total of 90 students.

Classroom Components

The vocational education offered by the Woodland Center is largely classroom, shop, or laboratory-based. It reflects a combination of business/industry needs and student interests. Machine shop, child care, and carpentry are particularly popular programs with the students.

Of the 800 to 900 possible enrollees, only about one-fourth actually take advantage of the Cooperative opportunities. This mirrors national sample figures on vocational concentrators. It would be misleading to label students in this region of Minnesota as vocational concentrators, however, since they are deliberately encouraged to experiment with various fields and trades. Training-related placements after high school are not carefully tracked in these districts, where vocational training may be more directly related to family needs or interests than to career paths.

We talked with students about why they are taking particular courses. In the long run, the major motivation was personal interest or utility at home. One articulate senior, who was taking a double period of machine shop, noted that he had no intention of becoming a machinist, an occupation that he considered much too precise for his taste. Instead, he will pursue photo-processing at the AVTI. Nevertheless, he enjoyed his machine shop experience--as well as several other vocational courses--and has even taken "related" mathematics courses, such as algebra, that are not required but are recommended for the students taking the vocational sequence in machining.

In the end, students take--and various types of advisors encourage them to explore--vocational courses that appeal to their current interests. With the existence of the Woodland Cooperative, there are enough offerings to satisfy the diverse interests of the student population. (In this region, interests vary mainly according to gender and farm or nonfarm background.) The Woodland philosophy is primarily concerned with the contribution of vocational education to students' personal lives and less concerned with its direct relationship to post-high school plans.

Work Experience

Cooperative education and on-the-job training are weak components of vocational education in this area of Minnesota, for the simple reason that there are few jobs available. In Staples, the relatively few work training stations that can be generated go to postsecondary students from the AVTI. At the secondary school level, some priority is given to finding placements for students enrolled in the Alternative Education Program, on the theory that these alienated adolescents have greater motivational needs. Last year, four alternative program students worked directly for the Woodland/Freshwater Cooperatives and were paid with Job Training Partnership Act (JTPA) funds.

Browerville has a course titled Cooperative Work/On the Job Training associated with its agribusiness program. Despite the presence of a Land o' Lakes plant in the community, training-related placements are extremely sparse. According to the instructor, he was able to place one student at a feed store, one as a clerk in a grocery store, one in a farm equipment repair store, and three on farms. The remainder of the class spends its co-op period in the classroom completing a job search skills workbook and participating in other deskbound activities that the teacher plans.

By regional standards, the young, energetic vocational agriculture teacher in Eagle Bend was highly successful in finding agribusiness placements during the 1986-87 school year. Nineteen of his 52 FFA members obtained cooperative education slots, although it is likely that some were only marginally related to the occupational areas addressed by the program.

The small amount of work experience offered in these six towns is sponsored through their individual vocational programs. None of the Woodland Center shared time vocational programs includes paid, on-the-job training or cooperative placements. Instead, many of the programs rely on school-based, hands-on opportunities designed to simulate the real world of work. Examples of this approach are the house building exercise in the building trades program, the preschool center in the child care program, and the model office in the business education program. (These strategies are all quite common in high schools nationally.) In Staples and surrounding communities, vocational educators would like to provide many more students with real work. As things now stand, the schools are resigned to making the best of a constrained situation.

## Extracurricular Activities

With the exception of the Future Farmers of America and the Future Homemakers of America at the home schools, vocational club activities in the Woodland region are weak or nonexistent. Seventy percent of Woodland Center students surveyed in 1986-87 indicated no involvement in a vocational youth organization. However, 43 percent said they participate in sports at the home school, and 46 percent participate in other kinds of extracurricular activities (mainly band and chorus).

## Outcomes

Prior to a 1981 state evaluation of the Woodland Cooperative Center, there were no formal follow-up activities to determine post-high school outcomes for students who had participated in vocational programs or courses, which includes nearly all graduates. At the recommendation of the state evaluation committee, the Center has planned and executed follow-ups on the classes of 1981 and 1985. The data from the two surveys are not precisely comparable for two reasons. First, the 1981 group is an estimated 80-90 percent sample of graduates who participated in shared time programs only. In 1981, Motley and Pillager had not yet joined the cooperative; therefore, the data are based on students from four communities, not six. The 1985 follow-up includes the post-high school activities of all seniors from six districts one year after graduation. Table 5 describes the results of the two follow-ups.

Table 5

Reported Post-High School Activities
of 1981 and 1985 Graduates:
Woodland Cooperative Center and Member Communities

| | Class of 1981 (n=270) | | | | | | Class of 1985 (n=283) | |
|---|---|---|---|---|---|---|---|---|
| | One Year Out (n=231) | | Two Years Out (n=221) | | Five Years Out (n=238) | | One Year Out (n=283) | |
| Activity | # | (%) | # | (%) | # | (%) | # | (%) |
| Vocational training | 72 | (31) | 13 | ( 6) | 8 | ( 3) | 85 | (30) |
| 2- and 4-year Colleges | 65 | (28) | 57 | (26) | 39 | (17) | 94 | (33) |
| Employment | 86 | (37) | 128 | (58) | 166 | (69) | 44 | (16) |
| Military | 8 | ( 3) | 13 | ( 6) | 12 | ( 5) | 20 | ( 7) |
| Unemployed | 0 | | 0 | | 13 | ( 5) | 17 | ( 6) |
| Homemaker | 0 | | 0 | | 49 | (21)[a] | 23 | ( 8)[a] |

[a] Overlaps with other categories.

The number of students going on for some type of postsecondary education or training averages 59 to 63 percent across the six school

districts in the first year after graduation. According to the director of the Woodland Center, many graduates prefer to stay in central Minnesota for further training and employment. This is confirmed by the follow-ups, which indicate that the most popular technical institute is the Staples AVTI, followed by two others within commuting distance of home; the preferred four-year college is St. Cloud, an hour's drive away; and the largest proportion of employed graduates work in Minnesota Economic Region 5--the Staples/Woodland area. Students do go away to college or for military service, but they tend to drift back at a later point in their lives. Among the 1981 graduates surveyed five years later, over half were then employed in the Staples area or two adjoining economic regions.

The follow-up on the class of 1985 in the six Woodland districts included 78 students who were classified as handicapped--about 28 percent of the total sample. During the year following graduation, 43 percent of these handicapped students were enrolled in postsecondary education and training, most of them at AVTIs; 20 percent were attending college. Sixty-six percent of the handicapped group were either in school or employed.

The follow-up studies gathered no information on training-related placements. In fact, given the philosophical emphasis on exploratory vocational education in high school, a clear relationship between course taking patterns and jobs would be unlikely. Among the relatively small number of 1981 graduates for whom occupations were identified five years later, 35 were in service occupations, 28 were in administrative support positions (other than secretarial), and 17 had production jobs. Other areas included secretaries (10), technical occupations (9), and sales (9). Only four former students had become machinists in spite of the training emphasis in this area both in the Woodland Center and at the AVTIs.

The Woodland Center asked 238 participating students to indicate their post-high school plans in January 1987. The respondent group included students aged 15 to 20, most of whom (69 percent) were juniors or seniors. Their self-reported intentions were as follows:

| | |
|---|---|
| vocational-technical institute | 30% |
| military service | 16% |
| 4-year college or university | 15% |
| community or junior college | 15% |
| get a job | 10% |
| private trade or business school | 1% |
| undecided | 15% |
| no response | 6% |

Counting military service as further education or training, 77 percent of these students believe that they will seek additional preparation for work after they graduate. The popularity of training at an AVTI reflects both familiarity with local institutions and economic realism.

## V. The Teachers

Three categories of teachers are involved in vocational education through the Woodland Center and/or the six cooperating towns. Eight teachers have Woodland contracts, meaning their salaries are paid directly from the pooled resources of the participating districts. One of these is an Adult Education agriculture teacher.[5] Twelve teachers are hired directly by the districts and do not teach students from other schools. A third group of nine teachers teach both local and Woodland Center courses.

Most vocational education teachers in Minnesota appear to be the products of vocational teacher training programs in the state's public colleges and university. This is particularly true of agriculture, home economics, and building trades instructors. It is not unusual for teachers to have considerable education beyond the bachelor's degree. Nondegreed teachers who come to vocational teaching from an occupational area must complete a bachelor's degree within a specified period of time, including appropriate courses to meet specialty area certification requirements. One business education teacher whom we interviewed had taught accounting and business law elsewhere but was having difficulty applying his previous education and experience to meet Minnesota's certification requirements.

In a small high school, a vocational teacher must be prepared to teach a wide variety of topics within his or her general field. One business education teacher was teaching business, math, typing, shorthand, accounting, general recordkeeping, and individualized, advanced levels of all of these during the quarter that we visited. The previous quarter she had taught business law and office machines as well. Her classes include straight A students and special education students. Every sophomore in this school takes typing.

A home economics teacher, formerly a nurse, handles all home economic courses--required and elective--for seventh through twelfth graders. She teaches foods, housing, family living, clothing, child development, and consumer education, juggling some topics in alternate years in order to cover the territory.

We observed a number of excellent teachers. Their relationships with students were, in virtually every case, relaxed and personal. Activities in the classrooms were purposeful, and interest, in general, appeared to be high.

The machine shop was most impressive of all. Housed in a large, garage-like space at Staples High School, it is immaculate. The instructor is professionally dressed in a navy blue laboratory-style coat with his name

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[5] In the 1960s, Staples purchased a 300 acre research farm with local funds. This facility has pioneered research on irrigation techniques, which has brought farmers of the area's heavy, sandy loam to the point where they are able to feed their own livestock. Three instructors are attached to the farm, including one provided by the University Extension Service.

embroidered on it in red. Students call him by his first name, but this in no way reflects an inappropriate lack of respect. This teacher made a mid-career change from a responsible and higher paid machine shop position at 3M to teaching because he loves instructing others and because he is good at it.

A machine shop is, by nature, a noisy place. There is also constant movement of students from place to place to use different pieces of equipment. In other words, it is not a classroom. In spite of the distractions, the teacher never failed to notice and respond to a student in need of his assistance. Students helped each other, as well. Every one of the 14 students was totally engaged throughout the entire period. Since the end of the school year was approaching, completion of required projects was very much on everyone's mind. Students say, "It's embarrassing to have to dump a project in the "junk heap" for failed projects." Therefore, they all listen carefully and work hard. As the period drew to a close, the students cleaned up--without being asked.

Whether this excellent vocational education results in a career or a job placement is almost irrelevant. Whatever their personal motivations for enrolling (and they are several), students are inspired by a man's love and mastery of a craft and their own carefully guided success in applying what previously might have appeared to be useless mathematical knowledge to coax precisely tooled pieces of metal out of impossible-looking machines. In the process, they clearly learn the value of teamwork, task-oriented behavior, neatness, and punctuality.

Integration with Other Faculty

Because of school size, vocational classes in the Woodland Region schools are less isolated physically than in large urban high schools. Staples does have a vocational wing, but teachers there feel very much a part of the total faculty--at least socially and in terms of participation in the decisionmaking process. There is certainly no overt sense of either second class citizenship or a separate and unequal status.

## VI. The Students

Demographics

There is little demographic diversity in the student population served by the Woodland Center schools. Families are nearly 100 percent white and middle or lower middle class. One sees a few Asian faces in the corridors--adopted children of Caucasian parents. Approximately 50 percent of secondary school students qualify for free lunch. About eight percent are classified as handicapped.

The Woodland Center made a survey of participating students in January 1987. The average student was 17 years old and in either eleventh or twelfth grade. Slightly more boys (127) than girls (111) participate. Center enrollments by home school appear below:

| | | |
|---|---|---|
| Staples | 124 | |
| Browerville | 35 | |
| Clarissa | 21 | |
| Pillager | 18 | |
| Eagle Bend | 15 | |
| Motley | 15 | |
| Long Prairie | 10 | (telecommunicasting only) |
| Total | 238 | |

Sixty-five students traveled to a vocational education class in another community than their home school.

Particular vocational programs or classes within programs seem to attract different types of students--different in the sense of interest, motivation, and achievement. For example, one community's agriculture teacher described his 40 FFA members as being "average or better academically." In one business education program, Basic Typing I enrolls mainly lower achieving students because of scheduling constraints. However, accounting attracts students in the top quartile, as does Model Office. Students electing upper level business education courses or Woodland's health occupations program are very frequently college bound.

Attitudes Toward Vocational Education

In the 1986-87 survey, vocational education participants emphasized several reasons for enrolling in Woodland Center courses, with no single reason standing out. "To prepare for a job" and "to prepare for further education or training" received the most votes, closely followed by "wanted to try something new" and "wanted to explore different occupations." Two-thirds of the students liked their vocational courses more than other courses they were taking. Forty-six percent felt that the training they received there was sufficient to prepare them for a job and 49 percent thought it would help prepare them for a specific occupation. Mainly, however, students took vocational courses because they liked them--fully 84 percent indicated that they like or like very much the Woodland classes they are taking.

The 1981 evaluation report of the Woodland Center programs specifically assessed whether sex role stereotyping affected enrollments in nontraditional occupational areas. The committee found that:

> Progress is being made to assure that sex bias and sex-role stereotyping are being eliminated from center vocational programs. Interviews with seven staff members indicate that many students are aware of the opportunities for them in "nontraditional" vocational courses. Information has been given to students to increase their awareness of career opportunities available to them. Some classes cover career opportunities within the curriculum. Enrollment figures indicate that traditionally "male and female" programs have nontraditional students in almost all of the vocational classes.

Several of the member school districts require all junior high school students (male and female) to take both industrial arts and home economics. Theoretically, this practice encourages senior high school students to elect nontraditional courses. There is current evidence of moderate success in this area. A business education teacher estimated that about one-third of his Model Office enrollment was male, and accounting was evenly divided between boys and girls. Vocational agriculture programs routinely involve both boys and girls. Of the 40 FFA members in one school, six or seven are girls and two of them are officers in the organization. On the other hand, building trades and machine shop are almost exclusively male bastions, while the child care and health occupations programs enroll mostly girls.

We asked students why they were taking the particular vocational class where we interviewed them. Reasons varied from "it fit my schedule" to "I plan to be an engineer." Most students, however, had no specific career goal in mind. Some know better what they <u>don't</u> want to be than what they do. A senior in a machine shop class has taken all the electronics courses available at the secondary level. Despite the fact that (1) his father is a machinist at 3M, (2) he loves the machine shop course, and (3) he has elected to take related higher mathematics courses in order to understand machinery better, this student has made up his mind to enter an unrelated vocational program at the AVTI in the fall.

Another boy took three years of drafting but is "tired of drawing bridges." Three weeks after graduation, he is headed for the Army Airborne Division on a four-year hitch (for which he was paid a sizeable bonus). Maybe he will let the Army train him, or perhaps he'll come back to the AVTI as a young adult.

Three girls--all seniors--are taking an independent study class in home economics. The first, who is sewing a designer outfit for herself, plans to attend a proprietary school and become a court stenographer. Another, who is preparing topical reports on issues related to early childhood education, says that she can't afford college right now, but may go to the AVTI in the fall. She has no idea what career path she might pursue. The third girl, who is pregnant, is making baby clothes for her independent study. She expects to marry her baby's father and become a homemaker.

A very articulate young woman acts as an advocate for vocational education generally and nontraditional enrollments in particular. She has taken a lot of it, majoring in health occupations and minoring in machine shop. Of herself she says, "My brain is simple. If you show me something over and over, I'll get it." It's clear that this statement is unnecessarily self-deprecatory, but it is her way of saying that she values the learning by doing approach that she has found in vocational classes. Her personal plans include marriage and relocation in the summer following graduation. She will either work as a nurse's assistant or, "If I can't find a job, I'll go to college and major in education."

These are all open, unself-conscious, intelligent, and mainly unfocused students who see high school graduation as the major foreseeable milestone. They assume they'll go on to postsecondary education and eventually get a job, or vice versa. The direct connection between what they have done for

the past four years and what they will do is not particularly strong in their minds or in their plans. They seem very relaxed about the future.

## VII. Summary Themes and Indicators of Success

### Summary Themes

The vocational education tradition in central Minnesota is very strong. As one would expect, vocational agriculture (frequently called agribusiness) is especially vital, but other, often related, areas also thrive. What clearly emerges from interviews and from studying the scope of vocational programs in high school course lists is a conscious and probably necessary emphasis on exploratory vocational education. Even with the pooling of resources represented by the Woodland Center, the region cannot support the depth of instruction in occupationally specific programs found in urban vocational magnet schools or in skills centers at the secondary school level. The possible exception to this statement is the machining program, which offers the possibility of intensive training.

To fit its own geographic and demographic circumstances, Minnesota has developed an exceptionally strong system of postsecondary vocational training through its AVTIs. Occupationally specific training is thus reserved for the post-high school years in regional organizations. Over the past two decades, the major portion of federal vocational education allocations to the state has been pumped into the AVTIs. There are many questions and discussions in the Minnesota legislature regarding the structure of postsecondary vocational education in the state (e.g., programmatic overlap between the AVTIs and the community college system). The point here, however, is that the philosophy of secondary vocational education has been shaped by an overall state educational plan that stresses postsecondary training. High school is a time to taste various career areas and test personal aptitudes.

The Woodland region is representative of rural education throughout the Midwest. These small towns are not isolated in terms of occasional shopping expeditions to large places, but they are in terms of the daily education of their children. Local pride and a desire to protect students from long, exhausting commutes to consolidated schools motivate communities to look for creative ways to keep their home schools intact and at the same time provide as many educational opportunities as possible. Their problems are compounded by the fact that, despite small total enrollments, their student bodies contain the full range of abilities found in any school.

In the face of these issues, the Woodland area has developed viable mechanisms for delivering expanded educational services. The Freshwater/ Woodland Center increases vocational opportunities for all students in the member communities and for special populations, including the handicapped, the gifted, and the alienated. Operating as it does without a central vocational facility, the Woodland Cooperative is a model that could easily be replicated without recourse to divisive referenda or capital outlay. What it takes is a shared interest in enlarging the scope of vocational offerings, good will, and time.

Indicators of Success

Perhaps the greatest indicator of Woodland's success is its continued existence where many similar efforts have dissolved. The "one town, one vote" rule has been a critical factor in sustaining the cooperative arrangement, in combination with determined leadership.

A consistent and respectable proportion of high school graduates from the six member communities go directly on for further education or training --approximately 55-65 percent annually. Many others may seek more training later on. (The average age of the student body at the Staples AVTI has now risen to 26.)

Minnesota has the lowest high school dropout rate in the nation. In the Woodland Cooperative towns, the dropout rate averages one to two percent annually. What is impressive is that even this low proportion is considered too many. Through the Alternative Education Program, the Cooperative succeeds in bringing 60-70 percent of the dropouts back into the educational fold.

It would be unfair and probably impossible to attempt to measure Woodland's success by training-related placements. Neither the cooperative nor individual schools take responsibility for job placement. The guidance staff focus primarily on postsecondary education, personal counseling, and discipline. Most students will eventually land on their feet in jobs or careers that are at least adequately satisfying. Church, family, and friends provide local job search networks that the school could only duplicate. Students going further afield are necessarily on their own.

On balance, the Woodland region has good reason for pride in its accomplishments. The vocational cooperative's director is by no means complacent and acknowledges the areas for improvement that he and the governing board must constantly address. This willingness to confront issues head-on is another indicator of the organization's dynamism.

# APPENDIX A

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